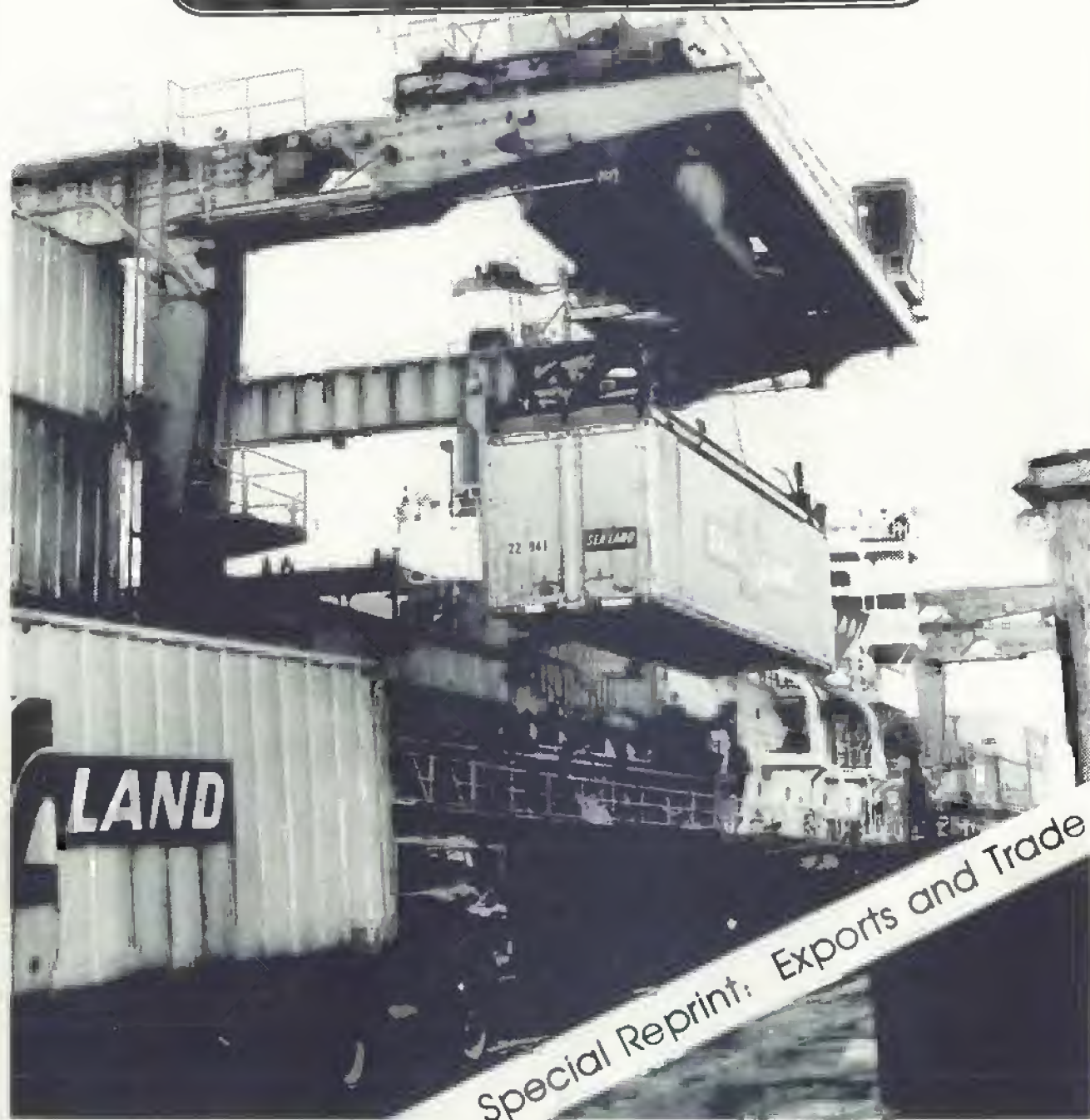


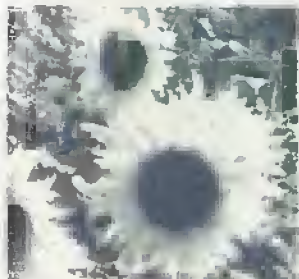
AGRICULTURAL OUTLOOK

December 1985

Economic Research Service
United States Department of Agriculture



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*Originally issued in 1985 series of **Agricultural Outlook**.

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Introduction

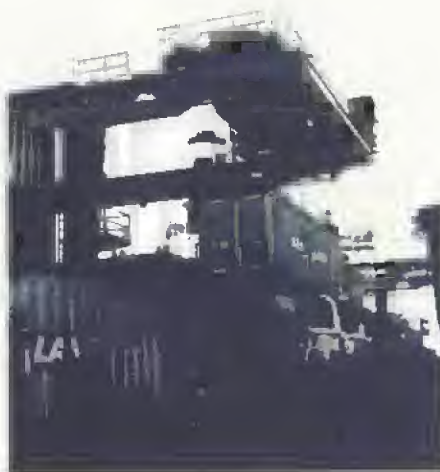
U.S. Agricultural Export Performance in the 1980's

This reprint includes 10 articles on U.S. agricultural exports drawn from 1985 issues of *Agricultural Outlook*. While they were not originally written as a single assessment and some data may no longer be current, the articles provide a broad perspective on U.S. export performance in the 1980's, its impact on the farm and general economy, and the legislation under consideration to deal with recent losses in trade volume and market share.

U.S. agricultural exports grew 9 percent per year from 1971 to 1981, as the world market expanded sharply and low prices and a cheap dollar allowed the U.S. to capture a disproportionately large share of the growth in trade. This export expansion generated a sharp increase in farm output and allowed operators to bring 50 million acres of idled cropland and 10 to 20 million acres of new land into production. Meeting export demand required 75 million acres more in 1981 than in 1971 and more than offset a 28-billion acre decline in the land necessary to meet domestic demand.

The costs involved in this increased dependence on exports have become painfully apparent since 1981. Growth in world import demand has slowed sharply and the rising value of the dollar, combined with high and rigid price supports, has weakened the United States' competitive position. Exports have fallen sharply as a result, down \$12 billion and 35 million tons since peaking in the early 1980's, and are continuing to decline in fiscal 1986.

Adjusting to the export downturn of the 1980's has proven much more difficult than expanding to meet increased demand in the 1970's. Domestic markets are not growing fast enough to absorb normal gains in productivity, let alone the excess caused by lost exports. Farmers made substantial long-term investments in land, structures, and machinery in the 1970's



that have proven difficult to reverse. With price supports isolating them from the full impact of the market downturn, many farmers are continuing to produce at 1970's levels despite the 1980's slowdown in demand. As a result, U.S. agriculture now faces an excess capacity problem reminiscent of the 1950's and 1960's.

The first article, "U.S. Agricultural Export Forecasts by Region", appeared in the October 1985 *Agricultural Outlook* and reports on export performance in 1984/85. Shipments in 1984/85 were 16 percent below the 1983/84 pace, and the final total fell to \$32 billion. This compares with a peak of \$44 billion in 1980/81.

The second article appeared as the "Agricultural Economy" section in the May 1985 issue. It focuses on the importance of agricultural exports to the farm economy and the broader agribusiness complex. It concludes that the export reversals of the 1980's have left the entire agribusiness complex with far more capacity to produce than demand for its goods and services. While difficult to measure with any precision, estimates of the complex's excess capacity range from 10 to 20 percent for production agriculture to more than 50 percent for some of the hardest hit input suppliers.

The third article appeared as the "Agricultural Economy" section in the October 1985 issue. It focuses on the relationship between domestic farm policy and the United States' competitive position in the world market. The

author emphasizes the negative impact that high exchange rates combined with fixed loan rates have had on U.S. agricultural exports.

The fourth article, "Where Do U.S. Exports Go?", provides an overview of the United States' major export markets and serves as an introduction to the next three articles on developments in the EC, China, and India. Developments in these three markets reflect the general difficulty the U.S. is experiencing competing with the traditional suppliers and with countries in transition from importers to exporters.

India, a country once heavily dependent on food aid, is fast approaching food self-sufficiency and competes with the U.S. in the world wheat market. China, a promising new market in the 1970's, has also made the transition from customer to competitor in key commodity markets, such as cotton and corn. Trade relations between the EC and the U.S. have also changed dramatically, albeit over a longer time period. The EC was traditionally the largest market for U.S. farm products, but the tonnage shipped in 1984 was less than one-third the average shipped in the 1970's. To compound the problem, the EC has become a fierce competitor in the world market.

The eighth article, "PL 480: Filling the Gap", highlights the role concessional sales play in U.S. agricultural exports. It appeared in the October issue and focuses on the mechanics of food aid. The author points to the critical but limited role food aid has and can play in expanding U.S. food exports. The ninth article follows on with an evaluation of food aid needs in Ethiopia and Sudan.

The last article outlines the trade provisions contained in the farm bill passed by the House of Representatives in early October. [Pat O'Brien and Herb Moses (202) 786-3333]



World Export Forecasts By Region

U.S. farm product exports in fiscal 1985 were forecast in mid-August at \$32 billion, nearly 16 percent below 1984. Volume is forecast at 129 million tons, 10 percent below last year. The decade-long rise in U.S. agricultural exports peaked in 1981 at \$44 billion and 162 million tons. Export volume has slipped steadily since then. Export value rose slightly last year, but remained \$6 billion below the peak and will lose another \$6 billion in 1985.

The value of U.S. agricultural exports in the first 9 months of fiscal 1985 was 14 percent below a year earlier, and no significant improvement is expected. Despite lower U.S. prices, demand for feedstuffs in major U.S. markets has grown only slowly, and many importers' own supplies are also high. Moreover, competition has been heightened by competitors' large exportable supplies and their willingness and ability to undercut U.S. prices. The situation has been exacerbated by this year's appearance of former importers as net exporters, including China and the European Community in coarse grains, and India in wheat.

Agricultural imports into the United States are expected to reach \$20 billion, up \$500 million from the May estimate. Imports of fruits and fruit juices and

cocoa and products have been stronger than expected, accounting for most of the rise. Increased imports will leave the agricultural trade surplus at \$12 billion.

Western Europe's Higher Output Squeezes Imports

Among regions of the world, the largest export decline is likely in shipments to Western Europe. Export value for the first 9 months was nearly \$2 billion lower than for the same period last year, and value is expected to continue to lose ground. While lower export prices and comparatively sluggish European growth rates are factors, increased agricultural production there has played the largest role.

Last year's excellent weather in Western Europe led to a 37-million-ton increase in grain production. EC wheat stocks subsequently almost doubled, and the Community became a net exporter of coarse grains in fiscal 1985. U.S. feed grain export prospects in Portugal were dampened by increased imports of manioc for feed and the end of Government subsidies to livestock producers for purchase of coarse grains.

Demand for feed ingredient imports also suffered from the EC's dairy reduction program. The program was implemented in the spring of 1984 and further production cuts are called for in 1985/86. The program has led to reduced milk output and a large increase in cattle slaughter. In addition, the lack of Western European sales of soybean meal to the Soviet Union this year, increased wheat feeding, and record EC oilseed production have held soybean demand to a modest increase. This increase was more than offset by near-record oilseed exports from South America to Western Europe. Thus, U.S. soybean sales are expected to decline from 1984/85's already reduced amount.

Dollar Reached 12-Year High in March

Although the dollar has fallen since March 1985 and may average only slightly above its 1984 foreign exchange value, it reached 12-year highs against European currencies in the first half of the fiscal year. Export volume is typically larger during the first half of each fiscal year (October-March), and the

dollar's rise during this period had a greater dampening effect on export sales than if it had occurred later.

Competition Cuts Sales to Japan

Since March, the dollar has also fallen against Japan's yen. However, the value of U.S. farm exports to Japan is expected to be down more than \$1 billion because of lower prices and a slight decline in the U.S. share of Japan's agricultural imports.

Despite Japan's strong economic growth, livestock production and feedstuff import demand are expected to increase only modestly in 1984/85. Growth in formula feed production in the first half of 1985 was around 1 percent, less than half the rate a year earlier. As a result, Japan's feed grain and soybean imports have fallen slightly, and a dramatic gain in corn imports from China has cut into U.S. sales. In addition, Thailand's exports of manioc to Japan and other Asian buyers have risen this year, as Thailand seeks alternatives to the increasingly restricted EC market.

U.S. soybean exports to Japan have suffered not only from sluggish feed consumption, but also from substitution of fish and rapeseed meals and from strong South American competition. Thus, U.S. soybean export volume to Japan is expected to remain near 1984's depressed 4.2 million tons, despite a 22-percent reduction in average export price.

Japan's purchases of U.S. cotton are likely to be substantially lower this year than last. One reason is that growing yarn imports into Japan have slowed the country's raw cotton use. In addition, U.S. prices are well above comparable foreign styles, even when accounting for the premium normally given for U.S. cotton's high quality.

Shipments to Canada Sluggish

A small decline is forecast in farm exports to Canada for fiscal 1985, as increased feed grain shipments fail to offset lower horticultural product exports. While Canadian economic growth has been stronger than that in the EC, unemployment has been comparably high and consumption restrained. Growth has also slowed in 1985 as total export opportunities to the United States have gained more slowly. In addition, high U.S. fruit prices may be

U.S. Agricultural Exports: Value by Commodity, 1984-85*

Commodity	October-June 1983/84 1984/85		Fiscal 1984	Fiscal 1985 forecast
	— Billion dollars —			
Grains & feed	13.015	11.107	17.434	14.3
Wheat & flour	4.572	3.556	6.738	4.9
Rice	.666	.490	.897	.7
Coarse grains 1/	6.535	5.891	8.216	7.2
Corn 2/	5.633	4.988	7.023	6.1
Oilseeds & products	7.606	5.431	8.774	6.3
Soybeans	5.045	3.421	5.734	3.9
Soybean cake & meal	1.035	.657	1.181	.8
Soybean oil	.490	.437	.633	.5
Livestock & products	2.579	2.532	3.460	3.3
Poultry & products	.308	.296	.413	.4
Dairy products	.272	.306	.397	.4
Horticultural products	1.985	1.976	2.606	2.6
Tobacco	1.216	1.305	1.433	1.5
Cotton & linters	1.978	1.750	2.405	2.0
Seeds	.258	.282	.320	.4
Sugar & tropical products	.620	.592	.789	.8
Total	29.837	25.520	38.031	32.0

U.S. agricultural exports: Volume by commodity, 1984-85

Commodity	October-June 1983/84 1984/85		Fiscal 1984	Fiscal 1985 forecast
	— Million metric tons —			
Wheat	27.488	22.454	41.700	30.5
Wheat flour	.940	.630	1.075	.9
Coarse grains 1/	43.856	46.692	55.546	57.2
Corn 2/	37.575	39.514	46.986	48.5
Foods, Ingreds. & fodders	5.273	4.839	6.845	6.5
Rice	1.673	1.401	2.293	2.0
Soybeans	16.848	14.525	19.265	16.6
Soybean cake & meal	4.197	3.449	4.862	4.3
Soybean oil	.661	.596	.828	.7
Sunflowerseed	.930	.895	.995	1.0
Sunflowerseed oil	.182	.116	.188	.1
Other oilcakes & meals	.169	.122	.198	.1
Beef, pork & variety meats	.294	.293	.394	.4
Poultry meat	.162	.176	.226	.2
Animal fats	1.041	.888	1.379	1.1
Tobacco	.192	.210	.227	.2
Cotton & linters	1.254	1.164	1.509	1.3
Horticultural products	2.246	2.085	2.853	2.7
Other	2.469	2.727	3.191	3.2
Total	109.875	103.262	143.574	129.0

1/ Includes corn, oats, barley, sorghum, rye, and products. 2/ Excludes products. * As of August 12, 1985.

discouraging Canadian purchases, and strong vegetable production in Canada last summer helped cut imports.

Grain Exports to USSR Likely To Set Record

In marked contrast to other customers, the Soviet Union is expected to take more U.S. farm exports this year. Export value will reach a record in fiscal 1985 for the second year in a row, following last year's disappointing Soviet grain crop. Soviet grain purchases from the United States have slowed this summer—possibly in response to the better Soviet crop outlook this year—but the volume of purchases has already

exceeded 1979's record 15.5 million tons. Soviet grain import needs are forecast at a record 55.5 million tons for the marketing year, and the United States is expected to supply the largest share.

The August 1985 estimate of U.S. farm product exports to the Soviet Union—\$2.8 billion—was based on strict compliance with the U.S.-USSR Grain Agreement. Under that agreement, the Soviets are obliged to import 4 million tons of U.S. wheat each agreement year

(October-September). Through August, only 2.9 million tons had been purchased and shipped, and the likelihood that 4 million may be shipped is very small. However, the Soviets have declared their intention to make the required purchases.

Eastern Europe Increases Its Own Production

Unlike the Soviet Union, Eastern Europe is expected to import a smaller amount of U.S. farm products this year, as it has every year since 1981. Regional efforts toward grain self-sufficiency and reduction of hard-currency debt are expected to continue to depress import demand. One result this year has been a reluctance to utilize U.S. credit guarantees. Of the \$170 million in U.S. guarantees allocated for Yugoslavian purchases of oilseeds, cotton, and cattle hides, only about half will be used.

Increased Eastern European crop production in 1984/85 is also trimming U.S. exports. Large soybean and rapeseed crops in the region last fall have reduced demand for U.S. soybeans, although soybean meal imports from the U.S. may be slightly higher. In addition, record grain crops have reduced import needs and have temporarily made the region an exporter of grain. Nevertheless, U.S. exports of wheat and wheat products will remain close to last year's, since they consist almost entirely of concessional shipments to Poland.

China Is Now More Competitor Than Customer

The value of U.S. exports to China is forecast to be about 60 percent lower in fiscal 1985 than last year, as China reduces its wheat imports. Burgeoning production has made China the world's largest wheat producer and reduced its import needs dramatically. Although exports of other U.S. farm products to China are growing, they have done little to offset the decline in wheat sales.

China's dramatic increases in farm production have also made it a formidable competitor in Asian markets for corn, cotton, and—to a lesser extent—soybeans. As corn production increased and food consumption shifted towards wheat, localized surpluses developed. Since transportation between surplus

and deficit regions within China is difficult, the Government decided to export its corn surpluses—perhaps as much as 5 million tons in 1985. Cotton exports have been similarly stimulated by 5 consecutive years of record production through 1984/85, and rising stocks.

Exports Lower to

Middle-Income East Asia

Chinese competition is having a noticeable impact in middle-income East Asia (Korea, Taiwan, and Hong Kong). U.S. agricultural exports to the region are expected to fall despite strong economic growth there. Led by exports to the United States, economic growth rates in these countries have been the highest in the world. However, performance of domestic demand has been more restrained, given weak domestic investment in Taiwan and, in South Korea, debt concerns that have necessitated tight fiscal and monetary policies.

Middle-income East Asia's coarse grain imports from all suppliers are not expected to rise in 1985, despite an expanding livestock sector in South Korea and large pig numbers for the year in Taiwan. Both Korea and Taiwan are seeking to raise the feed use of domestic grains. More important for U.S. sales is the rapid rise this year in China's corn exports to South Korea. While the United States has historically held 90 percent of the Korean market, China became Korea's largest feed grain supplier for 1984/85.

Similarly, although U.S. sales and market share for cotton are expected to remain strong in South Korea and Taiwan, a large decline is expected in shipments to Hong Kong, as China assumes a dominant role in the cotton market there.

Southeast Asia 20 Percent Lower

The value of U.S. agricultural exports to Southeast Asia will decline over 20 percent in 1985 because of increased local farm production and foreign competition. Import demand in the region will also be curbed by attempts to reduce current account deficits. Economic growth in the region (with the exception of the Philippines) has been strong compared with much of the developing

U.S. Agricultural Export Value by Region				
October-June Region	Fiscal 1983/84	Fiscal 1984/85	1984	1985 forecast
--Billion dollars--				
Western Europe	7.863	5.937	9.264	6.9
European Community	5.660	4.433	6.717	5.2
Other Western Europe	2.204	1.504	2.547	1.7
Eastern Europe	.579	.447	.741	.6
USSR	1.893	2.480	2.512	2.8
Asia	11.829	9.507	15.210	12.4
Middle East 1/	1.360	1.173	1.865	1.6
South Asia 2/	.756	.475	.867	.6
Japan	5.450	4.530	6.935	5.8
China	.484	.178	.692	.3
Other East Asia 3/	2.842	2.490	3.631	3.2
Southeast Asia 4/	.938	.661	1.218	.9
Canada	1.457	1.341	1.936	1.8
Africa	2.117	2.038	2.868	2.6
North Africa 5/	1.068	1.025	1.542	1.4
Sub-Saharan Africa	1.049	1.013	1.327	1.2
Latin America	3.934	3.606	5.282	4.7
Mexico	1.527	1.334	1.968	1.8
Central America & Caribbean	.875	.836	1.223	1.1
South America	1.532	1.436	2.091	1.8
Oceania	.164	.165	.216	.2
Total	29.838	25.520	38.031	32.0
Developed countries 6/	15.619	12.340	19.180	14.7
Less developed countries	11.262	10.075	14.906	13.6
Centrally planned countries	2.956	3.105	3.945	3.7

1/ Turkey, Cyprus, Syria, Lebanon, Iraq, Iran, Israel, Jordan, Kuwait, Saudi Arabia, Qatar, United Arab Emirates, Yemen (Sana), Yemen (Aden), Oman, and Bahrain. 2/ Afghanistan, India, Pakistan, Nepal, Bangladesh, and Sri Lanka. 3/ Korea, Hong Kong, and Taiwan. 4/ Burma, Thailand, Vietnam, Laos, Kampuchea, Malaysia, Singapore, Indonesia, Brunei, Philippines, and Macao. 5/ Morocco, Algeria, Tunisia, Libya, and Egypt. 6/ Western Europe, Japan, Canada, and Oceania.

world, but currency devaluations and public spending reductions have trimmed imports. Falling oil prices have helped some countries here, but Indonesia and Malaysia are large petroleum exporters and have suffered as a result.

U.S. wheat exports to Southeast Asia will fall this year; Indonesia's large rice supplies have reduced food grain import needs and both Indonesia and Thailand are seeking to curb wheat imports and save foreign exchange. Indonesia's wheat purchases from all customers have fallen, but sales by the United States have fallen faster than those by Argentina and Australia. The region's cotton imports are also expected to be lower in total, but again the U.S. share

will also slip because of increased competition, in part from China. Total imports of soybeans and soybean meal by the region will probably be higher, but once more U.S. exports have been cut by competition from China and Brazil.

India's Wheat Surplus Turns Another Customer to Competitor

Exports to South Asia will be lower in 1985 because of increased production there of wheat, cotton, and oilseeds. Rising food grain production pushed down India's wheat purchases last year and eliminated them this year. India is projected to export 1.5 million tons of wheat this year. In cotton, Pakistan also switched from importer to exporter, resuming its traditional role as a significant competitor of U.S. cotton both

worldwide and in South Asia. U.S. vegetable oil sales have been hurt by increased Malaysian palm oil supplies as well as greater domestic oilseed production.

In the Middle East, extensive offers of U.S. export credit guarantees are not expected to prevent a decline in U.S. exports, since much of the credit offered to Turkey and Iraq may go unused this year. A fragile economic situation in much of the region—due to reduced petroleum revenues—has heightened interest in less expensive suppliers. As a result of these poor economic conditions, U.S. wheat exports may fall one-third from last year's record 3 million tons. On the other hand, EC and Australian wheat sales to the region will rise; Australia's may double. U.S. rice exports to the Middle East will also be lower, but Thailand's will probably rise.

Sales to Africa Lower, Food Aid Up

Competition for wheat sales is hurting U.S. exports to North Africa. The United States has lost market share in Morocco and Egypt, and Tunisia's recent record grain harvest reduces import needs there. Grains generally comprise two-thirds of the value of U.S. exports to the region, and U.S. grain shipments may fall to a 5-year low in fiscal 1985. North Africa has been the focus of the Export Enhancement Program's first initiatives, but the shipments probably will not occur until after the end of this fiscal year.

Little decline is expected in exports to Sub-Saharan Africa. Severe drought in much of the region raised emergency food needs this year. Exports of wheat and vegetable oils—mostly concessional—are expected to reach record amounts, and shipments of blended food products and nonfat dried milk are also likely to be up. The largest increases are coming in exports to Ethiopia, Sudan, and Kenya.

On the other hand, South Africa's near-return to self-sufficiency in corn will lower feed grain sales. In 1984, South Africa's unprecedented corn imports propelled Sub-Saharan Africa's imports of U.S. agricultural products to an all-time high.

Latin American Production Up

The value of exports to Latin America will probably decline about 7 percent in fiscal 1985, in part because of lower prices for U.S. farm products. In addition, improved domestic production and limited economic growth are curbing import demand. Although 1984 and 1985 have seen improved economic performance in the region, the setbacks in investment and production that occurred in the previous few years have not been made up; the region's imports of all products were lower in real terms in 1984 than they were in 1973, and a sustainable large increase is improbable.

Domestic production has played an even greater role than debt problems in fluctuating agricultural imports. Mexico's coarse grain harvest was up last year, reducing its import needs. The fall-off in Mexico's purchases is the largest single decline in farm exports to Latin America. Food production for domestic consumption in the Caribbean rose in 1984 and is expected to be up again this year. Similarly, the Andean countries of South America have already harvested a second consecutive increased food crop. The exception has been Brazil, where a poor wheat harvest last year and continuing wheat consumption subsidies have led to increased U.S. sales.

Outlook for Fiscal 1986: Another, Smaller Decline

Fiscal 1986 may see another, although smaller decline in export value and volume. The volume of soybeans and meal may be higher, but declining feed grain volume is expected to offset the gain. Export unit values may be lower for most products, and the drop in export value will most likely be greater than the decline in volume. Although the Export Enhancement Program will probably have a greater impact next year than this, the final effect cannot be determined now. [Steve MacDonald (202) 786-1621]



Exports & the U.S. Agricultural Economy

Exports of agricultural products have become critical to many sectors of the U.S. economy—farming, input suppliers, transportation, and others. Domestic markets are not growing fast enough to absorb farm output, leaving agriculture and many related industries increasingly reliant on the export market for growth. However, this internationalization of U.S. agriculture is not without its risks. The opening of world markets created great opportunities for U.S. farmers in the 1970's—but it also created risk and uncertainty.

Exports Peak, Then Abruptly Decline

The volume and value of U.S. agricultural exports have dropped sharply since their peaks in the early 1980's. Export volume in 1984/85 is expected to be more than 33 million tons (21 percent) below the 162 million shipped in 1979/80. Lower prices have caused an even sharper drop in the value of

farm exports—1984/85 now running nearly \$12 billion less than the 1980/81 peak of \$43.8 billion.

There are numerous reasons for the decline: a world recession, debt problems of several large importers, increased production by some major importers and competing exporters, export subsidies by competing countries, import barriers by other countries, the strength of the U.S. dollar, and high U.S. price-support policies.

Declining exports have reduced the amount of land needed to meet export demand and cut exports' contribution to farm income. In 1982/83, approximately 31 percent of total harvested acres* were needed to produce U.S. agricultural exports—8 percentage points below the area required for exports only 2 years before.

However, total acres harvested in 1982/83 were 11 million above 1980/81. Since domestic use did not expand enough to make up for the smaller exports, the larger supplies ended up as burdensome stocks. This was one of the main reasons for the large acreage reduction program in 1983/84. That program, and a drought that summer, reduced harvested area by almost 60 million acres. The drought also cut yields of most crops. Thus, although exports continued to decline in 1983/84, the percentage of land needed for exports rebounded to the 1980/81 peak. However, this resurgence in the percentage of production going for exports was only temporary.

Harvested acres and yields (except wheat) rose sharply in 1984. The resulting large supplies, combined with expectations that export volume will continue to decline, mean that the percentage of harvested acres needed for exports will likely drop sharply again. A similar pattern has occurred with respect to exports' contribution to gross farm income (cash).

The reduction in exports has had a pronounced effect on U.S. agriculture. During the years when exports were expanding, farmers made substantial long-term investments in land, machinery, and improvements. Since many farmers are still paying for these investments, they are very reluctant to cut production to match the reduced demand.

For example, even with various Government programs designed to reduce wheat plantings, 1984/85 wheat production was only 7 percent below 1981/82. This compares with an almost 20-percent drop in wheat exports. Season average prices for wheat in 1984/85 were 27 cents a bushel less than in 1981/82.

Exports Spurred Expansion

Export expansion fueled the growth in U.S. agriculture during the 1970's and early 1980's. Between 1945 and 1971, U.S. exports increased from \$2.3 billion to \$7.7 billion, an annual compound rate of 4.8 percent. During the same period, U.S. agricultural output rose about 1.8 percent per year. During the decade following 1971, exports increased at an annual rate of 18.9 percent, and U.S. farm output rose more than 2.3 percent a year.

The faster growth in output caused some substantial changes in U.S. agriculture. Productivity increases allowed for a 50-percent expansion in output between 1945 and 1971 on almost 50 million fewer acres. However, with the sharp growth of exports between 1971 and 1980, some of this idled land was again needed. In 1971, only 62 million acres (20 percent of total harvested area) were needed to meet export demand. By 1980, the figure had grown to 137 million acres, or 39 percent of the total harvested area (area for exports includes land producing seeds for crops and feed for livestock that are exported). On the other hand, area needed for products for U.S. consumption in 1980 was 28 million acres below what was needed in 1971.

Growth Spread to Other Sectors

Increased exports were one of the prime reasons gross farm income grew more than 160 percent between 1971 and 1981. The increase in farm income helped finance expansion in other sectors. The index of farm machinery use rose 18 percent during the decade following 1971, and farm chemical use rose 49 percent. Fertilizer use increased 30 percent. This rise in demand for inputs helped farm communities and other sectors of the U.S. economy.

The volume of agricultural exports rose from 60 million tons in 1971 to over 162 million in 1980/81. This increased demand for storage, handling,

and transportation facilities and services throughout the lengthy marketing channel connecting U.S. farms and foreign consumers. For example, barge loadings of grains and soybeans in 1980, at 1.94 billion bushels, were almost triple the 1970 level.

Some Commodities

Hurt Worse Than Others

Some commodities have been greatly affected by the declines in exports in recent years. Wheat was one of the major beneficiaries of the expansion in exports in the 1970's and early 1980's. In 1971, wheat exports equaled 39 percent of production, or the output of 18.6 million acres. Ten years later, wheat exports had almost tripled and almost 64 percent of the harvested area (51.3 million acres) was needed for exports. In 1981/82, the farm value of wheat exports was almost \$6.5 billion, more than triple the value of total production 10 years earlier.

Thus, when exports plummeted, wheat was one of the crops hurt most. In the 1984/85 crop year, exports are expected to be almost 20 percent below their peak and the farm value of export sales down \$1.7 billion.

Corn exports in 1980/81 tripled the level in 1971/72, and their farm value was up \$6.5 billion from 9 years before. Exports were equivalent to 37 percent of production, compared with 14 percent in 1971/72. In 1984/85, however, exports were more than 20 percent below their peak, taking only 24 percent of production and having a farm value \$2.4 billion below 1980/81.

Soybeans are less dependent on exports than wheat is, but more dependent than corn. Soybean exports doubled between 1971/72 and 1982/83, and the percentage of total acres needed went from 35 to 47. However, reduced world demand and increased competition from other exporters have dropped exports 35 percent since 1981/82. This, combined with lower prices, will result in a farm value loss of \$2.1 billion. [Gerald Rector (202) 786-1691]

*Area harvested in principal crops, plus area in vegetables, fruits, tree nuts, and farm gardens.



Agricultural Economy

The world economic and trade environment has changed dramatically since the passage of the 1981 farm bill. Farm policy that was conceived in a climate of strong demand for U.S. commodities has become unworkable as market conditions have soured.

When the 1981 farm bill was written, the main concern on the international scene was whether production would be able to keep pace with the booming demand for farm products. This viewpoint was understandable; world trade had grown at unprecedented levels and the United States had been the main beneficiary. Between 1971 and 1981, world agricultural trade rose 160 million metric tons (55 percent), with U.S. exports up over 100 million tons. During these boom years, U.S. market prices were generally above support levels, and significant deficiency payments were made in only 2 years—1978 and 1979. In effect, the farm sector was operating largely in a free market environment during much of that period.

World Recession, Higher Dollar Ended U.S. Export Boom

The situation has changed considerably since the early 1980's. U.S. farm exports in fiscal 1985 will be about one-fifth below their 1980 peak volume. Except for the drought year

(1983), U.S. commodity prices have been near the loan rate, and land values have declined sharply. So, what happened?

An unforeseen world recession, the most widespread since World War II, and severe debt crisis brought a halt to booming world import demand, especially in the developing countries. Meanwhile, the value of the dollar rose to levels substantially higher than in the late 1970's, as foreign investors sought the security and high return of American investments.

But U.S. Farm Policy Was Set for Expansion

However, U.S. farm policies were set for production expansion in the 1980's, and domestic and trade policies in many foreign countries forced much of the needed worldwide adjustment in supply and demand back on U.S. farmers. Many of the factors behind the loss of exports, such as exchange rates and economic recession, are largely outside the influence of U.S. agricultural policy. Others, such as loan rates, are not.

To understand why there has been so much emphasis on loan rates in the hearings and discussions on the 1985 farm bill, it is critical to understand how loan rates and exchange rates independently affect international markets, and also, how each can reinforce or offset the effects of the other.

U.S. Support Price Perceived As World Floor Price

During the 1970's, the United States demonstrated its ability to respond quickly to increased food and fiber demand. This allowed the United States to capture the lion's share of the sharp increases in world import demand. It also positioned the United States as the price leader in world commodity markets.

Price supports or loan rates generally act as floor prices for U.S. program crops. But the mechanism by which this is accomplished is often misunderstood. The Government *does not* directly purchase commodities at the loan rate, nor is there a guarantee that market prices will not fall below the loan rate. Rather, the Government agrees to lend those farmers who meet all eligibility requirements (such as placing some of their land into conservation uses) an amount based on the commodity-specific loan rate. The farmer puts up his crop as collateral

and can get it back by paying off the loan plus accumulated interest. If the farmer chooses not to repay the loan, the Government becomes the owner of the crop. Only if enough farmers are eligible and choose to take advantage of the loan program are sufficient quantities isolated from the market to maintain prices at, or above, the loan rate.

Since the United States is the price leader in world markets, the Government loan rates are generally perceived as the floor prices for world markets. The minimum loan rates established in the 1981 farm bill basically guaranteed foreign importers and exporters that world prices would not go significantly below those levels for the next 4 years. Prices of foreign competitors have dropped below our loan rates, but the loan rate still acts as the main reference point in pricing policies.

U.S. Loan Rates Can Prevent Market Clearing

U.S. floor prices for major field crops greatly affect U.S. and international markets. From a basic economic viewpoint, they restrict adjustments in supply and demand and keep world prices above market-clearing levels.

In a free market situation, if supply expands without a commensurate increase in demand, producers must accept lower prices to sell their crops. The lower prices signal farmers to produce less in the future or reduce per unit costs of output.

These supply adjustments occur naturally as long as prices are above loan rates. When prices drop to the loan rate, however, the price support mechanism allows producers to take the excess U.S. supply off the market, helping prevent prices from falling to free market-clearing levels. Since foreign producers know there will be only limited U.S. supplies offered for export at prices below the loan rate, they take the opportunity to undercut U.S. prices and gain a larger share of the world markets. The reduced U.S. exports, in turn, mean bigger excess supplies in the United States. Thus,

much of the worldwide oversupply is forced back on the U.S. agricultural sector and often into U.S. Government stocks.

Effects on Importers Are Mixed

To foreign consumers, import prices supported by the U.S. loan rate are higher than they would be otherwise because they do not reflect the excess supply situation. This encourages importers to restrict purchases, especially if they have limited hard currency, and to increase their own production or seek alternative supply sources. Greater production in traditional importer countries, in turn, reduces the growth in world import demand.

However, this is not a one-way street for importers. As the U.S. Government and farmers (via the farmer-owned reserve) increase stocks, importers face less risk of sharp price rises because of temporary shortfalls in world production. In case of a shortfall, U.S. stocks can be released, although at a higher price. Thus, in the long run importers will be more likely to depend on the world market, possibly enhancing their demand. Competing exporters, however, will capture the benefits of this enhanced demand if U.S. prices are not competitive.

Exchange Rates

Can Alter Price Changes

In world markets, almost all commodities are priced in U.S. dollars, no matter who the seller. However, farmers in competing exporting countries are not paid in U.S. dollars, nor do consumers in importing nations pay for their food in dollars. Thus, when the value of the dollar appreciates against another currency, foreign producers and consumers see an increase in the price of U.S. commodities, even if the price in dollars is unchanged. The opposite is true when the dollar is dropping.

The short-run effect of an appreciating dollar is to reduce total world import demand, since importers have to pay more in their currencies, even if the world price expressed in dollars does not change. Higher prices also mean foreign competitors see the value of their exports rise as the dollar appreciates. This increase is an incentive for competitors to boost production and exports. It also provides an excellent opportunity to undercut U.S. prices and capture a larger share of the market.

How Price Supports and Exchange Rates Interact

If prices are above the loan rate, the market will handle changes in the exchange rates by adjustments in price. An appreciating dollar means higher

prices to importers, but U.S. prices can be lowered sufficiently to offset the higher dollar. A declining dollar boosts the competitive advantage of U.S. products. Importers increase their purchases from the United States since they have to pay less in their currencies. Exporters see their prices declining, and produce less for export.

However, when price support mechanisms keep prices from adjusting downward, the higher valued dollar simply compounds the problem for U.S. exports. The U.S. farmer sees no increase in prices, but the importers and foreign exporters do. Quantity demanded shrinks, but demand for competitors' products increases. The United States loses exports and market share.

Many Analysts Favor More Flexible Loan Rates

While the drop in U.S. exports and the decline in market share have been caused by more than loan rates and exchange rates, most of these other factors are beyond the influence of farm policy. Exchange rates, too, are determined by wider economic policy. Thus, there are currently several proposals in the 1985 farm bill for flexible loan rates to counteract changes in exchange rates and other factors that alter world supply and demand. [Gerald Rector (202) 786-1691]



Where Do U.S. Exports Go?

In fiscal 1984, nearly 60 percent of the value of all U.S. agricultural exports went to 10 countries. Ten countries accounted for about 80 percent of the export value of U.S. feed grains and oilseeds and over 60 percent of U.S. wheat. Purchases by large customers such as the USSR and China are well publicized because they wax and wane. But other single-country customers are also important.

Most of the countries listed as our 10 largest markets in 1984 were also among the 10 largest 5 years ago. With the exception of the Soviet Union, the composition of the group is fairly stable from year to year. However, some changes have occurred.

The countries that are members of the European Community as well as major U.S. customers have decreased their purchases of U.S. products. Meanwhile, the shares of several developing countries—Mexico, Korea, Taiwan, and Egypt—have increased. The trend is not confined to just the United States' 10 major customers. The share sold to all developed countries fell to 50 percent in 1984 and the developing countries' share rose to 39 percent, each group changing about 5 percentage points since 1979.

East Buys West

Japan has been the largest customer for U.S. agricultural products since 1963. Not only is Japan's share of U.S. agricultural exports more than twice as large as any other country's, but it is consistently in that position. Alone, Japan accounts for one-fifth to nearly one-third of U.S. fruit, soybean, tobacco, cotton, and feed grain exports. Japan's arable land is only about 1 percent that of the United States, and much of it is planted to rice and vegetables. However, rising incomes are increasing demand for poultry and red meat. Japan's growing livestock sector currently depends on imports for 70 percent of its feed, and

the imports' share is increasing. Only 2 percent of the country's coarse grain consumption comes from domestic production.

Japan's agricultural policies, like those of most countries, aim to promote food production and security. But support for domestic food and farmers has emphasized rice, historically the most important crop. There are no import duties on feed grains and imports from the United States rose 37 percent between 1979 and 1984 with most of the increase occurring in 1980. Feed grains now account for over one-third of the value of U.S. exports to Japan.

Korea and Taiwan: Growth Markets

Korea and Taiwan share several important features with Japan. Though Japan's highly developed economy sets it apart, all three have limited land and share a tradition and preference for rice. Though less developed, Korea and Taiwan are industrializing and have shown strong income growth and increased meat consumption since development accelerated in the 1970's.

Feed grains and oilseeds comprised about 60 percent of the United States' farm exports to Taiwan and 40 percent of sales to Korea. Together with Japan, Taiwan and Korea took 40 percent of our total feed grain exports and 33 percent of our soybean exports in 1984, compared with 27 and 28 percent in 1979. These three also imported about one-half of all U.S. cotton exported last year and a quarter of all tobacco, about the same as 5 years earlier. From 1979 to 1984, the amount of U.S. agricultural exports going to these countries as a share of all agricultural exports rose from 23 to 27 percent, with wheat the only major commodity declining.

Purchases by EC Members Slip

In contrast, the share going to countries that are both major customers and members of the EC (Netherlands, West Germany, the United Kingdom, and Italy) fell from 18 to 13 percent during 1979-84, lower than Japan's share alone. While shipments to the Netherlands—the largest customer of the four—declined only marginally, exports to the United Kingdom fell 27 percent, and neither Italy nor the UK has ranked among our 10 largest customers since 1982. While the value of our exports to Japan has fallen in only 1 year since 1979, export value to the Netherlands and West Germany has fallen in 3 out of 5 years.

These aggregate changes, and the changing mix of products exported, are partially a function of the EC's Common Agricultural Policy (CAP). The CAP's intent is to ensure fair standards of living for farmers and stable, secure, and reasonably priced food for consumers. But, it has also strongly affected U.S. agricultural exports.

For example, U.S. exports to these countries are strongly skewed towards oilseeds, which outsell grains 4 to 1 in value. This trend is continuing, partially reflecting Europe's poor climate for soybeans, but also reflecting the fact that variable import duties protect Community grain prices from erosion by imports. High domestic prices for

grains and the absence of import levies on oilseeds and products and other nongrain feeds have promoted the increased demand for these products.

Large EC Livestock Sectors Were Good Market for U.S. Oilseeds

Community prices are generally above world prices. Before 1979, these higher grain prices led to a boom in nongrain feed imports such as manioc, corn gluten, and oilseeds. The compound feed industry doubled in the 1960's and 1970's; and by 1979 the Netherlands, West Germany, the UK, and Italy accounted for 62 percent of U.S. exports of feeds and fodders (excluding oilcake), and took over a third of our soybean exports.

EC countries with large livestock sectors are thus much more likely to be major U.S. customers. In both the Netherlands and West Germany, the livestock sectors are larger than the crop sectors. Both countries also have relatively strong currencies, which under Community policy means grain prices there are even higher than in the rest of the EC. In addition, both nations are significant milk producers and therefore heavy users of compounded feed.

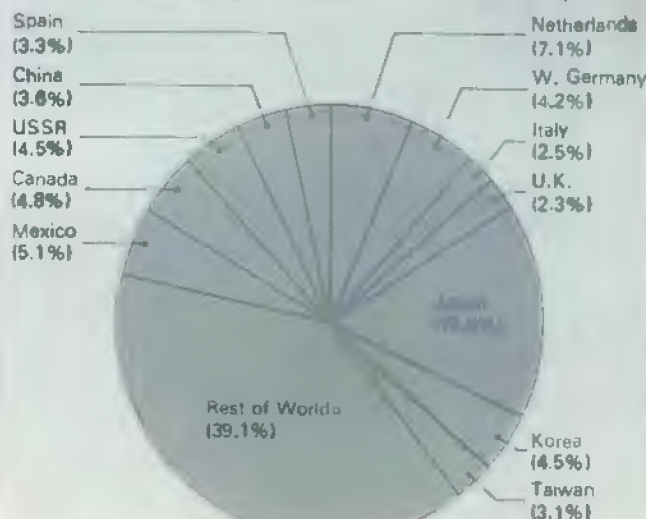
EC Recession Cut Imports of Both Feed Grains and Soybeans

Since 1979, EC economic growth has fallen to about 1 percent a year, compared with 3.5 percent in 1979. Declining farm income has sharpened interest in Community self-sufficiency. Oilseed production has been encouraged, and support prices for sunflowerseed and rapeseed have been increased substantially faster than those for grains. As a result, production of these commodities doubled between 1979 and 1984, displacing some soybean meal consumption. Import quotas on manioc, a soybean meal complement, further constrained consumption. Between 1979 and 1984, purchases of U.S. oilseeds and products by these four countries fell \$600 million, declining \$500 million for soybeans alone.

To encourage feeding of domestically produced grains, increases in the Community's intervention prices were allowed to lag increases in targeted wholesale prices. Import floor prices for corn were also raised more quickly than target prices. The result was that EC coarse grain imports fell more than twice as fast as consumption from 1979 to 1984, and imports from the United States fell more than four times as fast. Barley replaced corn as the most important component of feed grain consumption, while wheat feeding rose 80 percent and the Community became a net exporter of grains.

Europe's relative economic stagnation and growing unemployment during 1979-84 restrained meat demand, and livestock numbers failed to increase. However, until the dairy supply control program was instituted in 1984, milk production rose through increases in yields per cow. Nevertheless, the net effect of these changes was that U.S. feed grain

Japan Is Single Largest Customer for U.S. Farm Exports



Cumulative exports, 1980-84

exports to the four countries declined nearly as much as U.S. oilseed exports did. The United States did enjoy a modest increase in exports of other feeds and fodders. This increase was smaller than either decline, however.

Thus, in 1979, the "EC-4" took 8 percent of all U.S. grains exported and 31 percent of all oilseeds and products, but by 1984 their shares were 3 and 24 percent, respectively. Feed grains and oilseeds in 1979 comprised 60 percent of U.S. export value to the four countries, but only 47 percent in 1984. The share of other feeds and fodders (mostly corn gluten) doubled to 16 percent and represented one of the few increases. Cotton and horticultural goods were the only other increases and together accounted for only 8 percent.

CAP Was Not The Only Demand Squealer

During 1979-84, the share of U.S. agricultural exports going to the EC-4 fell from 18 to 13 percent, while that going to the East Asia-3 rose from 23 to 27 percent. The reasons go beyond EC policies of raising domestic production and increasing self-sufficiency.

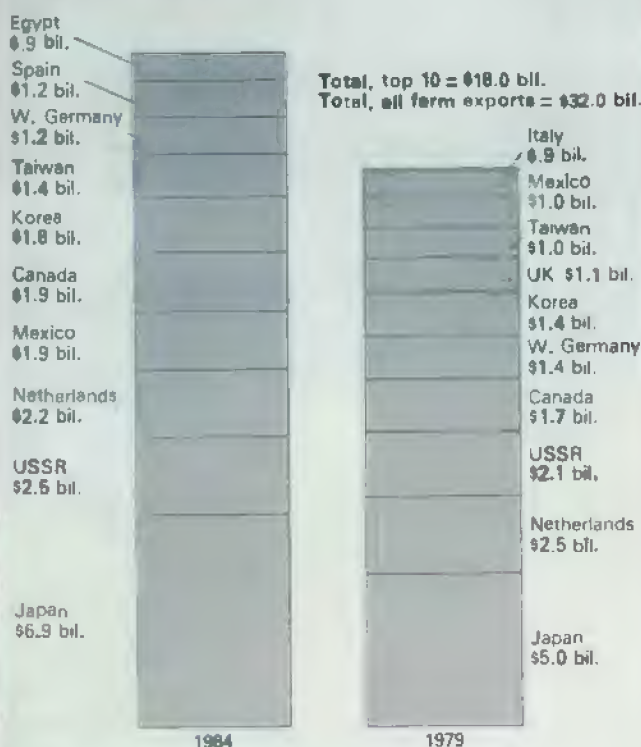
Because the three Asian countries are more densely populated than the European ones and are very mountainous, little opportunity remains there for expanding crop area. Moreover, agriculture in the three is already labor- and chemical-intensive, further restricting opportunities for growth. Korea and Taiwan in particular are still industrializing and pulling agricultural labor into industry.

China Feeds Its Own

China, another Asian country intent on industrializing, is not a growing agricultural export market for the United States. China was not among our 10 largest customers in either 1979 or 1984, but was fourth in 1980 and fifth in 1981. On a cumulative purchase basis, from 1980 to 1984 China was our eighth largest market. U.S. exports to China are largely grains but have included soybeans and cotton in the past.

Top U.S. Export Customers Have Changed Little Over 5 Years

Total, top 10 = \$22.2 bil.
Total, all farm exports = \$38.0 bil.



Fiscal years. Totals may not add because of rounding.

China's importance as a U.S. agricultural customer is a fairly recent phenomenon. Trade between the two countries grew as tensions eased through the 1970's and it blossomed in the 1980's when Chinese domestic policy encouraged imports. In 1981, China was the United States' largest customer for wheat.

China is important, despite its comparatively sporadic pattern of purchases from the United States, because it contains one-quarter of the world's population and has tremendous potential for consumption and production. In recent years, its production capability has become apparent. Following a 50-percent rise in procurement prices and other policy changes, total Chinese agricultural output has risen 50 percent since 1979, and record crops have given China self-sufficiency in several important U.S. export commodities.

Cotton and corn together accounted for over one-half of U.S. farm exports to China in 1979, but China is now a competing exporter of these products, as it is for soybeans. Wheat production has also reached record levels, but there is little movement of grain between provinces, and imports continue.

Consequently, wheat accounted for 97 percent of U.S. farm export value to China in 1984. The United States recently has been the main supplier, though its share has fluctuated

from 60 to 21 percent in the last 5 years. Cattle hides are now the United States' second largest export to China. Though hide exports have risen since 1979, they have not come close to offsetting declines in other commodities. U.S. agricultural exports to China peaked at \$2,184 million in 1981 and were \$692 million in 1984.

Mexican Purchases Increase

In contrast with China's decreasing importance as a U.S. customer, Mexico's has steadily increased. On a cumulative basis, it ranked third for 1980-84, compared with ninth for 1975-79. Like many developing countries, it has seen many years of burgeoning population and lagging agricultural production. As in China, recent years have seen a strong rise in production—but the increases have been concentrated in petroleum, not agriculture. Though not a member of OPEC, Mexico is the world's fourth largest producer of crude oil. Income rose with the oil boom, but food output has continued to lag. In 1980, Mexico's agricultural trade balance became negative and it has remained so since.

The United States is both Mexico's largest agricultural customer and its largest supplier. The U.S. share of Mexico's farm imports rose to over 90 percent during the beginning of Mexico's recent financial crisis. U.S. farm exports to Mexico declined over \$1 billion from 1981 to 1982 and but for extensive credit guarantees perhaps would have fallen further in 1983. In 1984, however, the need for GSM-102 credit guarantees fell to less than one-half of 1983's \$1.3 billion, and exports rose 11 percent from 1983.

The United States' largest export to Mexico is usually corn, which is primarily a food grain there. Feeds such as sorghum and oilseeds are also important exports but unlike U.S. corn often face competition from other suppliers, such as Argentina and Australia.

Of total U.S. agricultural exports to Mexico, 40 percent of the value consists of food rather than feeds or industrial raw materials. The food share is the highest of any country discussed so far and indicative of the state of Mexico's economic development. Less developed countries' farm imports from the United States tend to be over 50 percent food, compared with under 30 percent for the developed world. However, Egypt, the smallest of the United States' 10 major markets, imports an even greater share of food compared with nonfood.

Egyptian Food Needs Are Large

The largest export to Egypt is wheat, and Egyptian wheat imports from the United States and other sources have grown steadily since the 1960's. Egypt's agricultural land is severely limited and production has lagged while population—particularly urban population—has boomed.

Subsidized bread has long been available to urban consumers, but since 1979 it has become widespread in rural areas as well.

The United States is the country's largest wheat and flour supplier, but Egypt imports from most other major exporters as well. Cooking oil is another subsidized commodity, and animal fats and vegetable oils rank among the United States' more important exports to Egypt.

Soviet Purchases Are High, Sometimes

The Soviet Union, the United States' second largest customer in 1984, is not consistently an important customer and has ranked below Mexico and Korea over the last 5 years on a cumulative basis. While this ranking is in part due to the U.S. grain embargo during the period, the USSR was only our sixth largest customer for the 5 years preceding 1980.

Not only do total U.S. exports to the Soviets vary, but their distribution fluctuates. In 1979, wheat accounted for only 26 percent of our exports to the Soviets; in 1984, it reached 47 percent. Discerning significant trends in the Soviet Union is more difficult than for most countries, but it is apparent that livestock numbers there are increasing. U.S. exports vary with fluctuations in grain production and also with changes in Soviet economic and political priorities.

Canada Buys Plants and Produce

The Soviet Union is unique among our major markets for its volatility, while Canada, among our 10 largest customers during the last 5 years, stands out as the most important competitor, consistently exporting large quantities of wheat and barley.

Close ties and ease of transportation make large U.S. exports of corn and oilseeds to eastern Canada possible despite Canada's status as a major feed exporter. But the largest portion—40 percent—of Canada's U.S. farm imports are horticultural products, and Canada accounted for about one-third of all U.S. fruit and vegetable exports and 14 percent of U.S. meat exports in 1984. [Steve MacDonald (202) 786-1621]



India's Agricultural Success Story

During the 1960's and early 1970's, India was the world's largest recipient of food aid. Many observers doubted if the nation would ever feed itself. Per capita production of food grains showed little growth, and regular large-scale imports were necessary to avert widespread starvation.

Now, strong production gains have made India self-sufficient in food grains—its dominant food staple. Significant food grain imports now occur only after a major drought, and they are exclusively commercial. Record harvests the last 2 years, coupled with another bumper crop likely in 1985/86, have demonstrated India's vast agricultural potential and generated a large wheat surplus.

Moreover, the combination of declining food grain imports, periodic exportable surpluses of wheat and rice, and rising exports of an assortment of horticultural and high-valued products now allows India to run an annual farm trade surplus over \$1 billion. U.S. farm exports to India, mainly wheat and soybean oil, have generally declined since the early 1970's.

Achievements in food output, however, have not been uniform across commodities, nor have dietary standards improved greatly. There is now a big unmet deficit in pulses, and India has become the world's largest importer of edible oils. Both commodities are important in the Indian diet. And, while the Government operates a large distribution system for subsidized foods and widespread starvation no longer occurs even during severe droughts, nearly 50 percent of the population still cannot afford to purchase a

nutritionally adequate diet. Promising gains in pulse and oilseed production have been achieved since 1980, but inadequate nutrition awaits a solution, perhaps through expanded distribution and continuation of India's recent stronger economic growth.

High-Yielding Cereals Lead Production Gains

Since the introduction of high-yielding cereal technology in the 1960's, India's food grain sector has turned in an impressive performance. Total food grain production has grown at an annual rate of 2.7 percent since 1960/61, outpacing population growth of 2.2 percent by a small but significant margin. Growth in food grain output has picked up since the late 1970's, primarily because of improved yields—the 1983/84 harvest shattered the 1981/82 record by 14 percent.

Wheat output has increased the fastest, the result of rapid adoption of high-yielding varieties (HYV's) in irrigated northern regions. Although area expansion has slowed, steady gains in input use and yields continue to boost production about 6 percent a year. India has been able to reduce its wheat imports gradually. Imports are now smaller and less frequent, occurring only following drought-induced declines in production of rice and coarse grains—crops more susceptible to poor weather. Twice in the last 8 years—first during 1978-1979 and again in 1984—there have been exportable surpluses of wheat. Imports were necessary during 1981-1983 only to help compensate for rice production shortfalls.

Recent record harvests have boosted mid-1985 wheat stocks to an alltime high 21 million tons and total cereal stocks to a record 29 million, far above Government targets and the 19-20 million tons of available storage capacity. While some surplus wheat will be exported, longer term efforts will likely focus on expanding subsidized distribution in rural areas. Wheat exports are projected at 1.5 million tons in 1985/86, although vigorous world competition will hamper export sales. As in the past, most exports will likely go to the Soviet Union, India's major agricultural market, under a longstanding barter agreement.

Rice Output Grows More Slowly

Gains in production of rice, India's principal food staple, have been much less rapid than for wheat because of slower development and adoption of HYV's, and rice's vulnerability to poor monsoon rainfall. Most production gains have occurred in irrigated areas of north and south India. Productivity has lagged in the eastern region because of inadequate water control and relatively poor institutional support for production and marketing.

Growth in rice production has picked up in recent years. The 1983/84 harvest broke the 1980/81 record by more than 11 percent, and excellent crops are also estimated for 1984/85 and 1985/86. Recent gains are due to the introduction of HYV's suitable for various microclimates, increased use of fertilizer and pesticides, and good weather and unprecedented harvests in eastern India.

Progress in Irrigation Development and Input Use in India

	60/61	70/71	80/81	83/84 est.
Million hectares				
Gross cropped area	152.8	165.8	173.3	178.0
Irrigated area	28.0	38.0	54.1	60.5
Percent				
Share of gross cropped area that is irrigated	18.3	22.9	31.2	34.0
Share of gross cropped area planted to HYV				
Rice	—	14.9	45.4	54.1
Wheat	—	35.5	72.3	76.0
Millet	—	10.2	20.0	28.4
Sorghum	—	4.6	22.1	29.8
Corn	—	7.9	26.3	30.7
Total	—	15.1	41.3	49.1
1,000 tons				
Fertilizer use	294	2,256	5,516	7,792
Pesticide use	8.6	24.3	45.0	72.0
Million dollars				
Agricultural credit	286	905	2,676	2,851

SOURCES: Government of India, Fertilizer Association of India.

Variability in rice production has led to substantial fluctuations in India's role in world rice markets. Rapid gains in rice production in primarily wheat-consuming northern areas led to large exportable surpluses in some years in the late 1970's—rice exports peaked at 1.1 million tons in 1981. Poor rice crops in 1979/80 and 1982/83, coupled with low world prices, led to large imports during 1983-84, although India usually opts for relatively low-priced wheat to meet food grain shortfalls. Now, stocks are again rising above target and, with generally competitive prices, rice exports may be renewed. As with wheat, surpluses of coarse rice are primarily bartered with the Soviet Union.

Coarse Grain, Pulse Production Lag

While growth in wheat and rice production has outpaced population, per capita pulse and coarse grain output has declined. Pulses are an important protein complement to cereals in vegetarian diets, while coarse grains are a traditional food staple among low-income consumers. Pulse varieties that offer significantly higher returns than competing crops have not been developed, and cultivation has been relegated to unirrigated and relatively poor land where investment in inputs is risky.

Gains in pulse production have occurred since 1980 because the Government has promoted improved, short-duration varieties and prices have strengthened. The Government maintains a liberal import policy—pulses are the only food

item that may be imported without restriction. But, pulse imports remain small relative to the supply shortfall because of inadequate supplies in world markets.

Coarse grain output has increased slowly, primarily because HYV's do not offer returns competitive with other crops. Coarse grains are also produced primarily on rainfed land, where risk discourages investment in high-yielding technology. Demand for coarse grains for food has been weak because of improved supplies of wheat and rice, and feed use still accounts for only about 6 percent of production. India has not traded significant amounts of coarse grains since they were received as food aid in the mid-1960's and early 1970's.

Edible Oils Emerge as Major Farm Import

As the Government emphasized food grain self-sufficiency, oilseed production virtually stagnated between 1965 and 1980, and India has been the world's largest importer of edible oils since 1977.

Since the late 1970's, however, the Government has given the oilseed sector more emphasis, largely to reduce foreign exchange expenditures on edible oils—now the second largest import after petroleum. Initiatives have included:

- introduction of price supports,
- efforts to improve oilseed marketing,
- promotion of irrigated cultivation of new peanut and rapeseed varieties, and
- successful introduction of soybeans and sunflowers.

Also, the Government has generally held edible oil imports to levels that have removed sharp fluctuations in oilseed prices, and allowed oilseed prices to rise relative to competing crops. These factors have significantly boosted oilseed area and yields during the early 1980's. But, India's currently low average yields and broad oilseed production base—the largest area in the world planted to peanuts, rapeseed, sesame, linseed, safflower, and cottonseed—still offer wide scope for further gains.

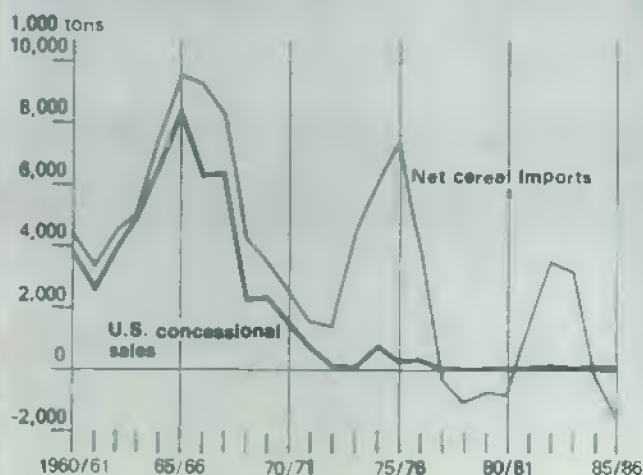
Agricultural Investment Grew Rapidly

The reasons for India's achievements in food production are not hard to find. In addition to the advent of high-yielding cereals, reasons include:

- a vast soil and water resource base,
- heavy investment in irrigation and other farm infrastructure,
- development of a large agricultural research and extension network,
- improved availability of fertilizer and other inputs, and
- supportive input and output pricing policies.

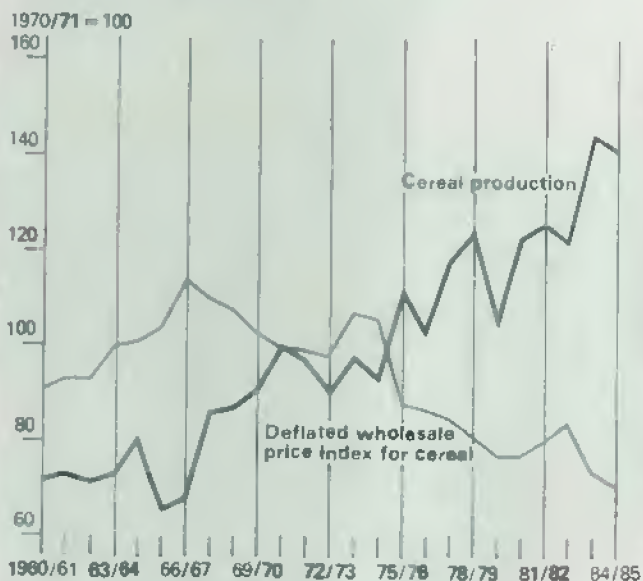
While the introduction of HYV's stimulated the initial production gains, emphasis on other factors of production has been largely responsible for gains in recent years.

Cereal Imports and U.S. Concessional Sales to India Have Plummeted



Sources: Government of India; U.S. Dept. of Commerce, Bureau of the Census; USDA estimates

India's Production Gains and Distribution Policies Have Pulled Cereal Prices Down



Sources: Government of India; USDA estimates

India's agricultural resource base is among the richest in the world. Gross cropped area of about 178 million hectares is the third largest in the world, and most farmland consists of high-quality alluvial soils. While a monsoon tropical climate makes rainfall highly seasonal and variable, climatic conditions make most land suitable for year-around cropping—if water is available.

About 35 million hectares are now multiple cropped, with the total rising about 1 million a year because of increases in irrigated area. Water resources are extensive and offer the potential to irrigate about 114 million hectares, nearly double the current 60 million—already the largest in the world.

The sustained high rate of investment in agriculture reflects the sector's dominant role in the economy and the Government's commitment to food self-sufficiency. Private farmers now finance about 70 percent of agricultural investment, the public sector accounting for the rest. Public investment under India's development plans has accounted for about 20 percent of total plan expenditures, and annual outlays are now more than twice as large in real terms as in the late 1960's. Total public expenditures on agriculture, including non-plan outlays for ongoing programs, are growing about 12 percent a year in real terms.

Critical to maintaining agricultural investment has been India's achievement of a high domestic savings rate—about 23 percent of GDP, roughly double that of other countries at the same stage of development. India has been a major recipient of concessional capital from bilateral and multilateral sources, but domestic resources have accounted for the overwhelming bulk of both farm and nonfarm investment. However, because the domestic savings rate is unlikely to rise much further, sustaining a high rate of investment in the future will depend heavily on improving investment efficiency and increasing the foreign capital available by expanding exports and foreign borrowing.

Investment in irrigation has been particularly vigorous, accounting for about 12 percent of total development expenditures, and has been essential to growth in multiple cropping. Area irrigated under major schemes (dams and canal systems) and minor ones (tubewells) has nearly tripled since independence, and has continued to grow at about 2.3 million hectares per year during the early 1980's. About 60 percent of the additional irrigation potential will require expensive major irrigation schemes. The remainder will need less expensive development of groundwater resources, primarily in eastern regions. Plans for the late 1980's include development of groundwater potential and efforts to reduce widespread inefficiencies in the use of existing major irrigation facilities.

Gains in Other Inputs Now Complement HYV'S

Efforts to expand the availability of production inputs have been broad-based. Fertilizer use continues to grow rapidly, benefiting from improved domestic production and distribution, use of subsidies and, more recently, from improved input/output price relationships and the Government's willingness to import heavily to assure adequate supplies. Annual growth in fertilizer use slowed to about 9.4 percent in the 1970's, in part because of price increases, but it has picked up to more than 12 percent in the early 1980's. Fertilizer use per gross cropped hectare is still low—about 44 kilograms in 1983/84—but that is up sharply from about 31 in 1980/81 and 16 in 1974/75.

Data indicate that pesticide use and farm credit are also expanding more rapidly. Pesticide use, while still low, increased about 15 percent yearly in the early 1980's, compared with 6 percent during the 1970's. Total credit extended to farmers was about \$2.9 billion in 1983/84, implying annual real growth of 4 to 5 percent since 1980/81, compared with about 2.3 percent during the 1970's.

Production and Growth Rates of Food Grains and Oilseeds in India

	Production			Growth rates 2/		
	60/61	73/74	83/84	1960/61 -83/84	1973/74 -83/84	1980/81 -84/85
	Million tons			Percent		
Food grains	82.0	104.7	151.6	2.7	3.0	4.0
Cereals	69.3	94.7	138.9	3.0	3.3	4.0
Wheat	11.0	21.8	45.1	6.7	6.5	6.2
Rice	34.6	44.1	59.8	2.2	2.5	3.2
Coarse gr.	23.7	28.8	34.0	1.2	.9	2.5
Pulses	12.7	10.0	12.7	.1	.9	3.7
Oilseeds 1/	6.9	9.0	12.4	2.0	2.3	6.7
Peanuts	4.8	5.9	7.3	1.1	1.1	5.3
Rapeseed	1.3	1.7	2.6	2.7	2.7	8.2

1/ Includes peanuts, rapeseed, linseed, nigerseed, safflower, sesame, soybeans, and sunflower. 2/ Annual rate during period.

SOURCES: Government of India, USDA estimates.

The Government has also intensified its efforts to achieve the yield potential of improved varieties by boosting production and distribution of certified seed, and by rapidly expanding the use of a highly successful extension method known as the "mini-kit." Under the mini-kit program, small quantities of improved cereal, pulse, and oilseed seed are provided to farmers, along with other inputs and intensive extension support, to encourage adoption of the full range of improved cultural practices.

Price Policies Balance

Producers' and Consumers' Interests

Agricultural price policy in India has been generally successful in striking a balance between adequate producer price incentives and the pressing need to assure affordable food for many low-income consumers. For cereals, procurement (support) prices are established annually on the basis of production costs and price movements of cereals and competing crops, and are supported by Government purchasing agents in primary markets.

To stabilize consumer prices, domestic and imported cereals are sold at subsidized prices through the public distribution system (PDS)—a network of about 311,000 retail outlets, primarily in urban areas. Annual distribution now ranges between 12 and 16 million tons, rising in poor production years when open market shortages push up prices. To meet the needs of the PDS in poor production years and, when necessary, to provide flexibility in the timing of imports, the Government is trying to maintain food grain stocks as of July 1st of this year at about 21 million tons. Periodic food grain exports have been primarily a short-term surplus management tool.

Although procurement costs for domestic cereals remain well below the landed costs of imports, large producer price rises are inhibited by the need to hold the line on consumer prices and control subsidy costs. In addition, planners believe, and most research supports the notion, that Indian farmers have only limited ability to respond to higher prices, particularly in the short term, because of weather and constraints on access to inputs. Policies have been highly successful in stabilizing consumer prices even in poor production years, and cereal prices have declined about 2 percent annually in real terms since 1970. Historically, producer prices have also tended to fall relative to the general price level and the cost of inputs, but this has generally been offset by productivity gains.

Since 1980, changes in output and input prices have tended to strengthen food grain producer incentives. This factor, along with good weather and improved input supplies, has likely contributed to recent large gains in production. Procurement price increases have been more in line with a generally lower rate of inflation. In addition, real fertilizer prices have declined. A 7.5-percent fertilizer price cut in 1983 has helped stimulate fertilizer use.

A byproduct of these price adjustments, however, has been a sharp increase in the cost of the fertilizer subsidy, to more than \$1 billion. And, despite increased retail prices for Government-procured cereals, record purchases to support prices and the high carrying costs on huge stocks have boosted the cost of the food grain subsidy to more than \$1.1 billion.

Another recent development is a plan to implement a crop insurance scheme for cereals, pulses, and oilseeds. Crop insurance could help raise production in rainfed areas by reducing the risk of investing in high-yielding technology.

Widespread Poverty Remains a Problem

Despite success in boosting production and maintaining affordable consumer prices, India has made little progress in improving dietary standards. Per capita consumption of cereals, which account for two-thirds of the diet, was about 164 kilograms in 1980-1982, almost the same as 20 years ago. Per capita pulse consumption was 10 kilograms lower than two decades earlier. Nearly 50 percent of the population lack the income to purchase a nutritionally adequate diet—a share that has changed little.

The underlying reason has been inadequate growth in effective demand—real per capita income grew at only about 1.4 percent per year between 1950 and 1980. Research indicates that development policies have not biased income gains against the poor—in fact, the distribution of income appears to be shifting gradually towards the poor. Although smaller farmers often adopt new methods more slowly, investments in irrigation and high-yielding technology have benefited both small and large farmers. These investments have also aided employment in rural areas, where 80 percent of India's poor live.

India's strategy has been to forego food grain imports that could boost consumption in the short term and, instead, use

resources for investments that may bring permanent reductions in poverty. Major constraints to this strategy have been in mobilizing enough investment capital to speed economic growth, and in investing that capital efficiently—particularly in nonfarm sectors.

Record harvests achieved since 1980 have also raised per capita food grain availabilities to record levels. Given the strong historical relationship between poverty and food grain output, there have likely also been measurable gains against poverty and malnutrition.

Moreover, recent gains in the farm sector have sparked significantly higher growth in the overall economy. Over the last 5 years, India's real GDP has grown at an annual rate of 5.2 percent, and its real per capita income at about 3 percent, the highest sustained growth in recent history.

The main goal of India's seventh 5-year plan, covering 1986-1990, will be to sustain this stronger growth. Investments in agriculture will likely go where returns are highest, including eastern India, rainfed agriculture, minor irrigation, and improvements in irrigation efficiency. With an extensive farm infrastructure now in place, stronger price incentives may also play an increasingly important role in stimulating farm production.

In nonfarm sectors, policies will strive to boost productivity and efficiency in the use of capital by liberalizing imports of vital raw materials and technology, and by exposing Indian industry to more domestic and foreign competition. Expansion of both farm and nonfarm exports will also be critical to help generate investment resources. If these policies are successful, continued strong growth in food grain production and in the overall economy, coupled with efforts to distribute food grain surpluses among the rural poor, may lower poverty and raise dietary standards more by 1990. [Maurice R. Landes (202) 786-1614]



China's Agricultural Revolution

The performance of China's agriculture over the last 7 years has far surpassed the expectations of both Western analysts and China's planners. While output will grow more slowly during the rest of the 1980's, U.S. agricultural exports to China will remain depressed.

Farm Output Has Experienced Phenomenal Growth Since 1978

China's total agricultural output grew by 49 percent between 1978 and 1984, a gain of nearly 39 percent per capita, in contrast to virtually no growth in the previous two decades. Output has grown for nearly all crop and livestock products. Moreover, growth has been steady, with no down years since 1977.

This growth is transforming rural China. After two decades of stagnation, rural areas are experiencing substantial economic expansion and average incomes have more than doubled. Consumption of food has risen sharply, and rural diets are beginning to show greater diversity and a larger proportion of foods such as meat, eggs, and fruit. Expenditures on consumer durables are up sharply, and rural housing construction is moving rapidly.

Along with growth in production and changes in consumption, the very nature of agriculture is beginning to change. Households, rather than collectives, are now the most important unit in the countryside. The profit motive is playing a much greater role while the importance of central

planning is declining; a rapidly rising share of output is being produced for the market rather than for on-farm consumption.

Once an Importer of Soybeans and Cotton, China Now Exports Both

The changes have also had important implications for American farmers. China's grain imports have fallen 37 percent since 1982/83 and its corn exports will exceed 2 million tons this year. China was the world's largest cotton importer 5 years ago, but now the nation is exporting over 1 million bales annually. Imports of soybeans and soybean oil have ceased and exports of soybeans and soybean meal have risen. The falloff in imports has reduced U.S. agricultural exports to China from \$2.2 billion in fiscal 1981 to \$692 million during 1984, and no significant near-term recovery is likely. The Chinese are now competitors in many of the products they were recently importing.

While progress to date has been very rapid, the pace of future growth is difficult to project. The gains over the last 5 years have come largely from exploiting severely underutilized resources and using much more fertilizer. With the easiest production gains behind them, China's leaders now face the much more difficult challenge of continuing to build the institutions and provide the resources that will generate sustained growth. How effectively they respond to these challenges has important implications for both Chinese and American farmers.

Yield Increases Have Led Crop Production Gains

Crop output is up 46 percent from 1978. Crop area has dropped because of withdrawal of land from cultivation and less multiple cropping. Thus, output has grown because of steadily rising yields. Increases have been striking: Yields of wheat, cotton, rapeseed, sugar beets, and jute and hemp have grown by more than 50 percent, or at average annual rates of 8 percent or more. Of the crops for which China reports data, only potato and sesame yields rose by less than 3 percent annually. Acreage shifts have also affected production. The area of many of the major cash crops rose as farmers cut back on plantings of grain, potatoes, and green manure crops.

The reasons for China's successes have been widely reported: excess capacity, more incentives, less central direction, and more fertilizer. By the late 1970's, the policies of nearly two decades had created indifference among farmers; misuse of land, fertilizer, and other inputs; and declining productivity. A wholesale policy change which began in 1979 was able to quickly tap this reservoir of potential output.

A major round of increases in the Government prices paid to farmers gave a big boost to producer incentives. Between 1978 and 1983, the average price paid farmers rose by nearly 50 percent. The impact of price increases was amplified by the progressive breakup of collective production systems,

as land was parceled out to households and farmers were allowed to retain or freely dispose of production above the amounts set in the annual contracts with the Government. The new policy links farm income directly with production, unlike the old system, in which households received a share of collective income that was largely independent of how hard they worked.

It is important to remember that China's new farm system still retains significant elements of Government planning. The contracts which farmers sign are a new form of plan, and what they produce and how they use their land is still strongly influenced by Government requirements. But the new system does give farmers more freedom, and the Government is gradually reducing the coverage of its plans. What planning does remain in the system is simply better than it was 7 years ago. Rather than stressing local self-sufficiency, planners are now encouraging specialization and adapting cropping to local conditions. This shift has added significantly to efficiency. The move toward specialization has also seen the emergence of specialized households, which concentrate on the production of one item. There are now 25 million commercial family farms, representing 14 percent of all farm families.

Finally, the growth of output has been aided by a rapid rise in fertilizer availability. Large modern nitrogen fertilizer plants bought from the United States, Japan, and Europe in the mid-1970's doubled China's capacity to produce nitrogen fertilizer. New domestically designed plants have also been added. And, fertilizer imports are up sharply. As a result, fertilizer consumption rose from 8.8 million tons in 1978 to 16.6 million in 1983.

Livestock Sector Expanding, But Still Behind

Livestock has been and remains a lagging sector of Chinese agriculture, accounting for only about 17 percent of total farm output, despite major gains since 1978. Still, livestock production has grown more rapidly than crop output, and meat production is now 67 percent above the 1978 level. The gains were large enough to permit the lifting of pork rationing in the early 1980's. While data on poultry meat and eggs are unavailable, poultry and egg production is also up substantially.

Despite these gains, though, livestock product consumption is still extremely low. Rural consumption averages only 7 ounces of red meat and one-half ounce of poultry meat per week, and only one egg every 2 weeks.

The growth of livestock output has been due to a combination of new policies and improved inputs. Producer incentives have improved as households have assumed a growing share of the responsibility for livestock raising, particularly in finishing hogs for slaughter. Government procurement prices for livestock were raised sharply in 1979 along with prices of other farm products. Also, improved feed supplies from the large increases in grain and oilseed production have made a major contribution to livestock output growth.

While most livestock raising remains a small-scale household sideline, recent policies have encouraged households to specialize in livestock production. These households raise several times the number of animals that households normally raise and must rely to a large extent on purchased feed.

Chinese Farm Production Increases Dramatically...

Commodity	1978	1979	1980	1981	1982	1983	1984	% Increase 1978-84
Million tons								
Wheat	53.8	62.7	55.2	59.6	68.5	81.4	85.5	58.9
Rice	136.9	143.8	139.9	144.0	161.6	168.9	176.0	28.6
Coarse grains	79.1	83.1	84.2	80.8	83.5	92.4	97.5	23.3
Cotton	2.2	2.2	2.7	3.0	3.6	4.6	5.7	161.2
Oilseeds 2/	16.4	17.4	20.2	24.5	27.1	30.9	31.2	90.2
Tobacco	1.1	0.8	0.7	1.3	1.8	1.2	1.3	18.2
Sugar crops 2/	23.8	24.6	29.1	36.0	43.6	40.3	40.0	68.1
Meat 4/	8.6	10.6	12.1	12.6	13.5	14.0	14.4	68.0
Pork	7.9	10.0	11.3	11.9	12.7	13.2	13.5	71.1
Total agricultural output 2/	109.7	117.4	119.0	125.3	138.5	149.3	157.7	49.2

1/ Estimated. 2/ Soybeans, cottonseed, peanuts, rapeseed, and sunflowerseed. 3/ Sugarcane and sugar beets. 4/ Pork, beef, mutton. China also produces about 1.5 million tons of poultry meat. 5/ 1976-78 average = 100.

...While U.S. Agricultural Exports to China Slide

Year 1/	Wheat	Corn	Cotton	Soybeans	Other	Total
Million dollars						
1978	133.8	—	150.9	14.4	69.5	370.1
1979	357.0	291.6	193.5	37.8	37.3	917.2
1980	691.8	225.5	794.5	200.7	84.6	1957.1
1981	1402.2	108.9	481.4	154.7	36.8	2184.0
1982	1268.1	138.7	292.4	95.3	24.6	1819.2
1983	285.4	250.1	3.3	—	7.4	546.2
1984	675.0	—	4.7	—	13.4	692.0
1985 2/	NA	NA	NA	NA	NA	500

1/ Year ending September 30. 2/ USDA estimate.

In addition, a limited number of large-scale confined feeding operations run by the collective sector have been established near large cities. In several cases, these feed lots are part of joint ventures with foreign investors. These operations serve the urban areas and export markets. While the nontraditional forms of production—specialized households and large-scale facilities—currently account for only a small share of output, they will be increasingly important in the future and their development has major implications for the growth of feed demand.

Government Faces New Challenges

Priorities for the remainder of the decade include (1) more selective growth, (2) continued emphasis on livestock development, and (3) expansion of subsidiary foodstuff output. This period will bring both slower aggregate growth and further major changes to the agricultural system, because farmers and planners now face the following new circumstances:

- The easiest opportunities for increasing efficiency are gone, removing a major source of rapid output gains.
- Since retail prices of basic commodities have been kept stable, the rise in procurement prices has required steadily rising Government subsidies and a growing strain on the budget.
- The large increases in production of many crops have overwhelmed the Government's procurement, storage, processing, and transportation capacity. Very large stocks of a number of commodities, particularly cotton and grains, have accumulated.

- Farmers have concentrated on quantity, not quality, with the result that the production mix does not match demand. For example, textile mills complain about the poor strength of the cotton; consumers want lean pork, while farmers continue to sell traditional fatty varieties of hogs; and there are shortages of high-quality rice while stocks of lower grade and less preferred varieties are excessive.

The marketing and price systems are central to most of these problems. The Government-run system was adequate for a period of slowly growing output, a low level of off-farm sales, and general scarcity where consumers were willing to take whatever they could find in the stores. But this system cannot deal efficiently with the rapid growth and rising importance of consumer demand. Unless the marketing system changes, producer incentives will be stifled, consumer dissatisfaction will grow, and budget subsidies will eat up Government revenues.

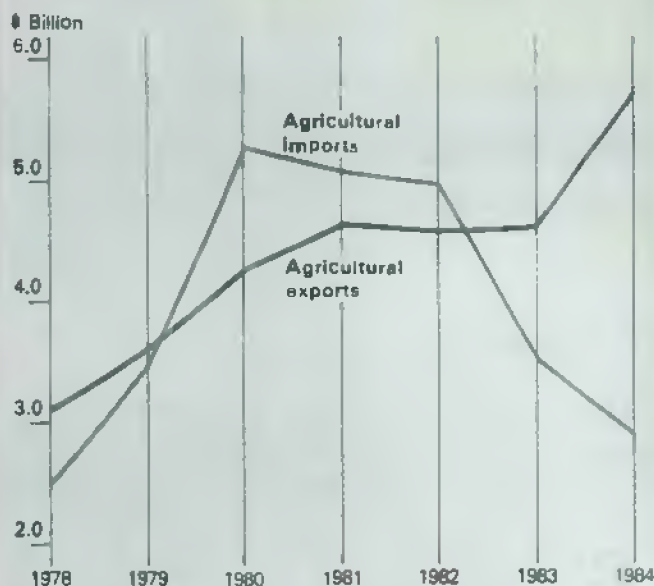
To deal with those problems, the Government is now beginning the second phase of the agricultural revolution—the reform of the marketing and price system. This promises to be a much more comprehensive reform and contains severe economic and political risks for the Government. The basic elements of the new phase include the following:

- The number and volume of farm commodities that the Government buys are being cut. For example, beginning in 1985, the Government will buy wheat, rice, and corn, but will end compulsory delivery quotas for other grains. The 1985 purchase quota for cotton has been dropped more than 20 percent from the 1984 total purchases, and the Government will not buy any more than this amount. This change will force a greater share of production onto the market at prices that are market determined, rather than Government guaranteed.
- Restrictions on free markets, farmer transportation, and sales of farm produce will continue to be eased. The Government is also investing heavily in improving transportation, storage, information flows, and other aspects of the marketing system.
- Pricing formulas for Government purchases are being changed to freeze the price paid. There have also been suggestions that Government purchase prices will be cut, but this is probably several years off, at least for major commodities such as grain.
- The structure of procurement prices is being changed to increase quality differentials.
- Retail prices for agricultural products are being increased.

In the short run, these actions will increase producer risk and uncertainty and dampen incentives, and they are likely to significantly slow growth of total production over the next 5 years. An educated guess is that average growth for combined crop and livestock output during the remainder of the decade will be only about 3 percent annually.

While this rate is well below the 8-percent average of the last 7 years, it should be adequate to meet the demand growth of most commodities. The main constraint on development during this period will be how quickly China's farmers can shift production away from crops such as grain and cotton toward other crops. For livestock, the constraints will be limited feed supplies, shortages of suitable breeds, and the livestock marketing system.

China Registers a Tremendous Turnaround in Farm Trade



Source: CIA compilations of partner country trade data; ERS estimates.

China Has Historically Been A Net Agricultural Exporter

For China's suppliers, the unlimited promise that many saw in the Chinese market several years ago has given way to disappointment and rising concern about Chinese competitiveness. Current concerns may prove as overblown as the optimism of a few years ago, but China is still not likely to be a growth market for American exports during the remainder of the decade, and will offer competition in an expanding range of products.

While the United States' major interest in China has been its import potential, for most of the last 35 years China has been a net exporter of farm products. As recently as 1978, agricultural exports—livestock products, fruits and vegetables, rice, and a variety of specialized products—accounted for nearly one-third of total exports. Major agricultural imports have been restricted to a rather narrow range of bulk commodities—wheat, corn, and cotton—with relatively small amounts of other items.

China sharply increased agricultural imports in the late 1970's as part of the new agricultural policies. Cotton imports soared as China moved to meet rising domestic and foreign demand for textiles. Soybean and soybean oil imports rose as the Government acted to alleviate extreme shortages of edible oils. Grain import requirements also increased as the Government began to guarantee grain supplies to cash crop producers. By 1980, China was a net importer of farm products for the first time since the 1960's.

These larger imports were considered temporary. One reason for higher grain imports was to ease the shift of land to cotton and oilseeds and reduce imports of them. Policymak-

ers indicated that they hoped grain imports could eventually be cut as well. Despite the rapid growth in trade, the Chinese were never committed to permanently increasing reliance on foreign sources of basic commodities.

Indeed, the expansion of imports was short-lived. Production quickly caught up with demand. Imports plateaued between 1980 and 1982 and then plummeted in 1983 and 1984. Exports, on the other hand, were stable between 1981 and 1983 and then soared in 1984, when China registered what was probably its largest agricultural trade surplus in the last 35 years.

In the early 1980's, China was importing nearly 15 million tons of grain and a half-million tons of soybeans, and was a leading importer of cotton. Exports of these commodities were negligible. But currently, the only coarse grain being imported is barley for brewing. Wheat imports have fallen by 30 percent, and soybean, soybean oil, and cotton imports have essentially ended. At the same time, China is now exporting at least 2 million tons of coarse grains, soybean and soybean meal shipments are up sharply, and cotton exports have become a drag on an already depressed world cotton market.

The most important immediate factor behind this abrupt change in trade patterns has been large stocks. Domestic utilization has been unable to absorb the large production increases. In the case of cotton, 1984/85 production was nearly 60 percent above consumption and China now holds about one-half of total world stocks. Stocks of coarse grains and soybeans are also high. Inadequate processing and transportation prevent these from being shifted between regions, and export has proven the only means of surplus disposal despite the obvious requirements of the livestock industry.

U.S. farm sales to China have followed this same general pattern. During fiscal 1981, China was the fourth largest U.S. export market, as sales reached \$2.2 billion. Thus, the drop in agricultural imports fell heavily on the United States. Other factors—the dispute over U.S. textile imports from China and strong competitive pressures from other exporters—have also had their effect on U.S. sales, but the main factor has been the success of China's agriculture.

Import Demand Prospects: Poor for Coarse Grains, Good for Breeding Stock

Grain.—China's demand for wheat will continue to grow at a rapid pace. This growth, coupled with slowing production growth, makes it likely that import levels will begin to trend upward again in the latter part of the decade, although high stocks may further depress imports for the next year or two.

Coarse grains prospects are much less certain. Human consumption, the major use of coarse grain in China, is declining as consumers shift to wheat, rice, and meat. The livestock sector will require rising amounts of corn, but the capacity of China's system to process, distribute, and effectively utilize a rapidly growing amount of feedstuffs is limited.

While the use of corn for feed will increase by several million tons annually, growth is unlikely to outstrip domestic production. So, corn exports may well continue, although at somewhat lower levels as stocks are reduced. We may also see some corn imported for use in the rapidly growing livestock sector in southern China, even as exports from the northern producing regions continue.

Rice exports have so far been low, but the growth of consumption is slowing and stocks are high. China may well provide some unpleasant surprises for other rice exporters.

Soybeans and soybean products.—A shortage of protein meal is one of the largest potential constraints on China's livestock development, and domestic demand for meal will certainly increase. But the pace of the growth in demand is uncertain. Eventually, demand growth will limit export supplies and likely lead to declining exports of soybeans and soybean meal and a resumption of imports. However, the timing of this shift is impossible to predict.

Cotton.—Domestic supplies of cotton are now so far out of line with Chinese consumption that the Government is reducing planned procurements in 1985 and production is likely to fall sharply. But exports will continue for the foreseeable future, although possibly at slowly declining levels.

Other agricultural products.—China is pushing the development of both the food processing and livestock sectors in part for their export potential. China is already the major supplier of livestock and livestock products to Hong Kong, and is moving to open new markets elsewhere in Asia. The high priority for livestock is also offering important new opportunities for U.S. exports of breeding stock and livestock and feed technology.

China is already an important exporter of fresh and processed fruit and vegetable products and is almost certain to become increasingly active in these international markets.

In short, the dramatic changes in China's agriculture have caused a major shift in the country's position in world agricultural markets. China remains an important export market with some long-run potential. But it has also become an unwelcome source of new competition in many international markets for U.S. farm commodities. [Frederic Surls (202) 786-1616]



EC Grain Policies Hurt U.S. Exports

The European Community harvested a huge 151-million-metric-ton wheat and coarse grain crop in 1984. This crop is the largest ever—28 million tons above 1983 and 19 million above the previous high in 1982—in part because of unusually favorable weather. The resulting supplies will make the EC for the first time a net exporter of coarse grains, a condition which has existed for wheat as far back as 1974. The situation also serves as an ominous reminder to the United States and other traditional grain exporters that the EC has growing capability to generate grain surpluses.

The EC's grain pricing policies, in combination with technological advances, are responsible for the Community's long-term growth in export potential. EC policies have a double impact on U.S. grain exports. Not only are U.S. grains displaced from the EC market, but they also face direct competition in non-EC markets from subsidized EC grains.

EC Imports of U.S. Grain Continue To Slip

EC imports of U.S. grains have declined sharply in recent years and are now half the level of two decades ago. For the 1984/85 marketing year (July-June), EC imports may total only 4.5 million metric tons, less than one-third the average tonnage during the 1970's. The U.S. share of the market (counting intra-EC trade) is estimated at 20 percent for 1984, compared with an average of 40 percent during the 1970's. Although the major tonnage decline has been in coarse grains, wheat imports have also slipped.

EC policy has offered domestic grain producers a protective variable levy on imports and an open-ended price support (intervention) system. The major grain-producing countries—including France, West Germany, and the United Kingdom—have responded strongly.

EC Competes in World Markets

The 1984 grain crop is expected to lead to record exports in 1984/85. Export gains are forecast for both wheat and barley. The USSR, Poland, Algeria, and Egypt are among the EC's major grain markets.

The amount the EC spends to dispose of surplus grains is second only to that spent for the EC's biggest surplus commodity, dairy products. Surplus soft wheat production has been dealt with in various ways: subsidized exports, feeding schemes (including denaturing—i.e., adding fish oil or dye to bread wheat), and increased storage.

The EC's aggressive export policy for wheat and wheat flour led the United States to file a 301 petition in the General Agreement on Tariffs and Trade (GATT), charging that the EC was displacing the United States from traditional markets through subsidized exports. Subsequently, in 1983 the EC voluntarily and unilaterally limited its subsidized exports to 14 percent of the world wheat market.

Although the EC normally needs to subsidize exports substantially to be competitive in world markets, the strength of the U.S. dollar nearly eliminated the need for export subsidies early in 1984/85. For example, in 1979 the EC's export subsidy for wheat averaged 1.77 ECU's (\$2.42) per bushel, but the subsidy dropped to a low of only 0.07 ECU's (\$0.05) in mid-September 1984. A similar development occurred for coarse grains.

The strong appreciation of the dollar relative to EC and most world currencies has reduced world commodity prices stated in dollars but increased prices stated in EC currencies. The result has been higher prices for commodities imported from the United States, an improved export position for the EC and, therefore, lower budgetary costs, despite the bumper grain crop.

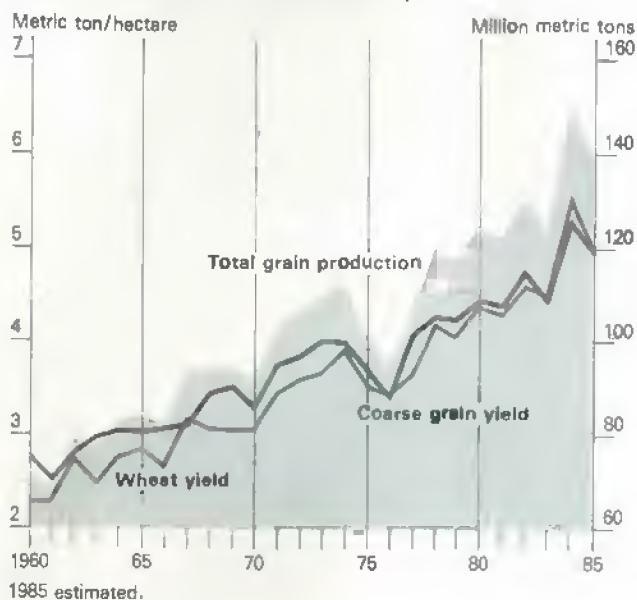
One EC policy is to let soft wheat prices fall below intervention prices, encouraging feed use of wheat. Stock accumulation is minimized, and export subsidy costs are lowered. The EC's expectation is that soft wheat will further substitute for barley in livestock rations, leaving more barley—which has a more favorable export market than soft wheat—available for export.

Yield Increases Have Led Big Production Gains

Total grain production in the EC has expanded at an annual rate of 2.7 percent—from an average of 73.2 million tons in 1960-1962 to 132.7 million in 1982-1984. All of the increase has come from higher yields, since area declined 465,000 hectares (1.6 percent) between the two periods. However, area shifts have occurred among grains. Wheat area is expanding and coarse grain area is contracting.

Average annual increases in wheat and coarse grain yields were 3.1 percent and 2.6 percent, respectively, between 1960-62 and 1982-84. Thus, wheat yields are higher and have increased faster than coarse grain yields. Yields vary considerably, though, among countries and among grains. For example, corn yields in France and Italy, the EC's two major

EC Grain Output and Yields Have Climbed for a Quarter-Century



producers, are typically higher than wheat or barley yields. Also, there are significant regional differences within some member countries.

EC wheat and barley yields have traditionally been high by U.S. standards (corn yields are higher in the United States). Fertilizer application rates in the EC are higher than in the United States and moisture and growing conditions are usually quite good for small grains. In addition, new, ever-higher-yielding varieties of wheat and barley have been developed continuously for the past two decades. High-yielding varieties of wheat are commonplace. Farmers have expanded production of wheat because the greater yields make wheat more profitable than other grains within the EC price support system.

Grain Prices Set High in '67

Guaranteed high prices have been the incentive behind the EC's expansion in grains. Grain prices among the original six member countries¹ were "harmonized" in June 1967 with a tilt in favor of the higher West German prices. The higher prices provided a particularly strong stimulus to French producers, who were accustomed to lower prices. France had a "quantum system" in which prices were keyed to the level of production: small producers received higher prices than did large producers.

The EC substantially increased nominal prices for grains over time, providing an impetus to producers to continue expanding output, particularly when price increases were coupled with technological advancements. If adjustments to national currencies are factored in, price incentives for increased production appear even stronger.

Feed Wheat Production Encouraged By Intervention System

Two factors contributed to the rapid rise in the EC's soft wheat production—the intervention price for soft wheat was more favorable than for other grains, and there was no price

differentiation between wheat of bread-making quality and wheat for feed. Consequently, high-yielding varieties of soft wheat were developed; although these were not of bread-making quality, they were eligible for intervention purchase at high prices.

Beginning in 1976/77, the intervention price for soft wheat not of bread-making quality was lowered to the same level as for barley. In 1978/79, the corn price was also set at the barley level. Finally, rye prices were aligned in 1982/83. Thus, the same intervention price applied to soft wheat not of bread-making quality and to feed grains. However, the market price for each grain varies because of differences in nutritional values and the supply-demand situation for each season.

Over time, the EC has widened the band between intervention and target prices for grains so that internal market forces have a greater effect on market prices. Consequently, the EC relies less on institutional price setting and intervention buying.

Since soft wheat is the grain most in surplus, its price tends to be substantially depressed relative to other grains. Prices at the farm gate, particularly in major surplus wheat areas, can be significantly below intervention prices, since transportation and handling costs must also be considered.

On the other hand, corn is still in deficit in the EC and the target price provides a ceiling for feed grain market prices in the Community. If prices rise to the target price level, corn imports begin to enter the EC at the threshold price and prevent further price increases.

The increased availability of wheat at relatively low prices has resulted in much higher feed use of wheat in the EC. Use grew from 8.7 million tons in 1967/68 to 15.3 million in 1982/83, when wheat accounted for 22 percent of all grains used in feed. In 1983/84, the feed use of wheat jumped to around 20 million tons. In addition to the large quantities of feed wheat, the Community had a program in 1983/84 to subsidize surplus bread wheat for use as feed. The EC has continued to encourage feed use of wheat, but increases in 1984/85 do not appear large.

More Grain Imports Likely To Be Displaced

The decline in soft wheat prices relative to the price of imported grains—especially corn and hard wheat—has led to several developments in the EC in recent years:

- **Corn Import Competition**—Allowing soft wheat prices to decline while raising the threshold price for corn has made EC soft wheat competitive with U.S. corn imports in starch manufacturing. This development has occurred despite the fact that starch yields from wheat are reportedly 4.5 percent less than from corn. Wheat starch also reportedly requires more electricity and steam to manufacture. In addition, switching from corn to wheat involves the loss of corn oil, a valuable byproduct. However, wheat starch processing yields wheat gluten, which is also relatively expensive in the EC, whether purchased in concentrated form or as a component of hard wheat.

- **Hard Wheat Import Competition**—Wheat gluten is now increasingly substituted for high-quality imported wheat in making bread, displacing U.S. imports of hard wheat. Wheat

¹The six original members when the Rome Treaty was signed in 1957 were Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany. Denmark, Ireland, and the United Kingdom joined in 1973, and Greece in 1981.



P.L. 480: Filling the Gap

In light of widespread hunger overseas and declining U.S. exports, increased attention has been focused on P.L. 480 recently, and several proposals have been made to change it. The current program has three parts. Title I provides long-term concessional credit to assist countries in need of our commodities. Under Title II, donations aid famine relief, nutrition programs, and development projects. Title III allows the Title I debt to be forgiven if certain additional development measures are undertaken by the recipient.

Since fiscal 1980, P.L. 480 shipments under all titles have averaged between 5.5 and 6.0 million tons a year. For 1984, preliminary data show that approximately 5.7 million tons were shipped, valued at about \$1.3 billion. Africa received more than half this, while Asia and Latin America received about one-quarter and one-fifth respectively. Of 72 recipients, Egypt, Morocco, Sudan, and Bangladesh received the largest volumes of P.L. 480 in 1984.

Among Certain Commodities, P.L. 480's Share Increasing

While last year's P.L. 480 shipments constituted only about 4 percent of the volume of total agricultural exports, the program is more important for specific commodities. In fiscal 1983, about 11 percent of all U.S. wheat and

flour exports, about one-fifth of all rice, and one-quarter of combined cottonseed and soybean oil exports were shipped through P.L. 480.

The rising share of P.L. 480 exports of these commodities reflects deterioration of commercial markets more than it does greater P.L. 480 shipments. The volume of P.L. 480 shipments in 1983 was no larger than in 1980, but all U.S. agricultural exports fell 12 percent during that period. In 1984, the share of P.L. 480 wheat and flour exports together fell slightly, but the P.L. 480 share of flour exports alone almost doubled to about two-thirds. The shares for rice and vegetable oil declined slightly in 1984 chiefly due to less P.L. 480 shipments.

However, with increased shipments in response to the African famine and with lower commercial exports, the share of P.L. 480 shipments for wheat and flour, rice, and vegetable oil will increase significantly in 1985. P.L. 480 wheat and flour export shares could again surpass 10 percent. Estimates indicate that the P.L. 480 share of cottonseed and soybean oil exports this year could expand by between one-third and one-half over last year's level, while that of rice could rise even more.

Section 416

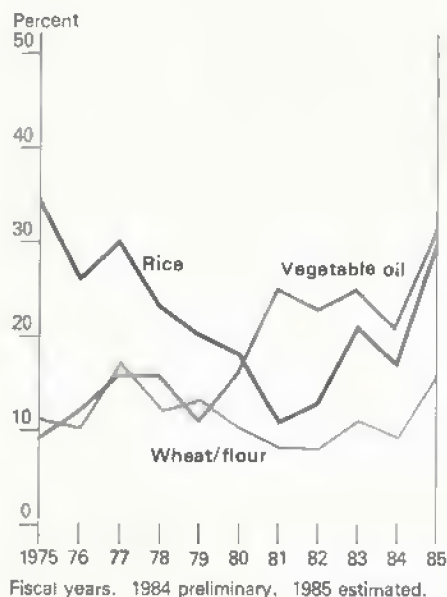
In addition to P.L. 480, foreign donations have been authorized for humanitarian purposes under Section 416 of the Agricultural Act of 1949, as amended. In 1982, overseas donation of CCC-owned dairy stocks was authorized. In 1984, wheat donations were authorized, and in 1985, rice.

There are some Government and industry concerns about Section 416 donations. One is that it may disrupt commercial markets, although this risk is less for dairy products since only small quantities are shipped commercially. Another is that the donations would cut into the CCC budget. However, the House and Senate farm bills include provisions to expand Section 416, in both type and volume of commodities.

Food for Progress

A "Food for Progress" program has also been proposed. Several versions have been put forward in Congress, but the intent is for the United States to

For Several U.S. Exports, P.L. 480 Shipments Represent A Growing Share



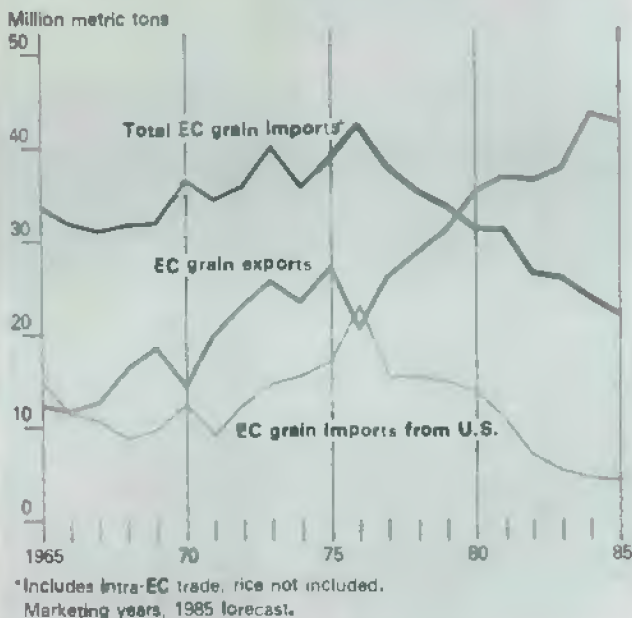
grant commodities to developing countries, on a multiyear basis as a reward for adopting market-oriented agricultural policies. The program would last from fiscal 1986 through 1989, involve a maximum of 500,000 tons of commodities per country per year, and be exempt from the Cargo Preference Act. Funds would also be provided for the processing and delivery of the commodities. Resale of the commodities would be prohibited and measures would be required to avoid displacing U.S. exports.

Title I/Local Currency Proposal

When P.L. 480 was enacted in 1954, potential purchasers of U.S. commodities lacked dollars to buy them. To ease payment problems, the United States accepted local currencies in payment for P.L. 480 commodities. However, local currencies were of little value to the United States outside of the country. As recipients' economies grew and the United States accumulated large sums of local currencies, the U.S. Government stopped accepting them in payment for Title I commodities and only accepted hard currencies (dollars or currencies convertible to dollars) in the early 1970's.

The Title I/Local Currency proposal in Congress would allow accepting local currency again in an effort to improve the developmental impact of Title I sales. In the Senate version of this

As EC Exports Move Grain, U.S. Sales Slide



gluten production has expanded rapidly in recent years. Wheat gluten is still viewed by some as too limited in supply and too high in price for large-scale use in milling. This situation may change dramatically, though, as new plants and plant enlargements come on stream. Improvements in the EC's baking industry have already reduced the demand for high-quality hard wheats.

Lower Intervention Prices Not Likely in Future

The EC will continue to be a surplus producer of grains, because of the Community's policies and the industry's production efficiency.

The EC Commission has recommended that EC grain prices be lowered to world (or U.S. target) levels, but the EC Council—the decisionmaking entity in the Community—has not endorsed this recommendation. If the value of the U.S. dollar should weaken substantially, subsequent grain price reductions would be a most difficult pill for the Community to swallow.

The extent to which the EC can lower grain prices is both a political and an economic matter. Certainly grain producers will be opposed to price reductions and will pressure the agricultural ministers of the EC member countries through their representative organizations.

This has already occurred in West Germany, for example, where Agricultural Minister Ignaz Kiechle refused to go along with his colleagues in the recent EC Agricultural Council meetings on grain price reductions for 1985/86. Under the EC's present price regime, it is likely that large grain producers in fertile areas of the Paris basin are receiving prices well above production costs. However, the cost of producing grains in other areas of the EC, and the likely response to substantially lower prices, are much more problematic.

The Community already has a mechanism for reducing grain prices if production exceeds a given base period. For each 1 million tons of grain in excess of the guarantee production threshold, grain prices are to be reduced 1 percent, up to a maximum of 5 percent.

However, this mechanism lacks effectiveness because the reduction is made from base grain prices that are politically determined ahead of any production-related price reduction.

Thus, politicians can simply make allowances in advance for any price cut. Another hitch with the price adjustment mechanism is that it may be totally ignored—as it has been to date. One should keep in mind, though, that EC and national officials, who were quite outspoken against dairy quotas, still accommodated them when EC budget overruns became critical.

A fall in the dollar's value vis-a-vis EC currencies would exacerbate the EC's budgetary problems and possibly expedite measures to bring surplus grain production under control. Reducing or eliminating U.S. support prices for grains would also tend to increase EC grain-sector costs.

EC grain production in 1985 is expected to recede from 1984's high level. Prices received for soft wheat may also result in some production shifts within the grains sectors. In addition, further impetus will likely be given to the production of rapeseed and sunflowerseed, both of which have expanded rapidly in recent years. However, guaranteed production thresholds are now in place for both rapeseed and sunflowerseed. But, as indicated earlier, this device may not be very effective in constraining output.

Inertia and Politics Will Probably Keep EC Policies at Status Quo

Overall, it seems highly unlikely that EC policies will be changed to further control grain production in the near future. Major reasons include:

- the EC's tendency to resolve critical issues only as it is forced to;
- the Community's desire to remain a major grain exporter;
- the politicians' concern with supporting farm income; and
- the budgetary relief expected January 1, 1986, when the cut of the value-added tax going to the EC's own resources is raised from 1.0 percent to 1.4 percent.

However, budgetary problems are still a major concern and real prices of grains will surely continue to decline.

EC officials are quick to point out that, despite the decline in U.S. grain imports, Community imports of commodities such as soybeans and other nongrain feedstuffs significantly increased through 1981. Although this is true, EC imports of U.S. soybeans, soybean meal, and nongrain feedstuffs have slipped in recent years. In addition, the EC is contemplating imposing import quotas on corn gluten feed and meal and citrus pellets. On numerous occasions, officials have also discussed a consumption tax on fats and oils. These actions would further damage U.S. exports, which have declined from 28.8 percent of EC imports in 1970 to only 18 percent in 1984.

The total value of U.S. agricultural exports to the EC has deteriorated since the 1980 fiscal year peak of \$10.6 billion. Value reached only \$6.7 billion in fiscal 1984. Moreover, U.S. farm exports to the EC during October 1984-March 1985 were 21 percent below the comparable period a year earlier. [Reed E. Friend (202) 786-1720]

proposal, at least 25 but no more than 50 percent of the value of all Title I sales (or 500,000 metric tons) would be repayable in foreign currencies under terms set by the Secretary of Agriculture. The remainder would be repaid in convertible currencies over an extended period as is currently done. The local currency funds would be lent to financial intermediaries (including cooperatives, private voluntary organizations, and the U.S. Overseas Private Investment Corporation), which in turn would make loans to the local private sector to stimulate private enterprise, increase distribution and consumption of U.S. commodities, and increase private sector development. The financial intermediary would repay the United States beginning no later than 10 years and ending no later than 30 years, but in dollars.

The Title I/LC proposal is a hybrid of two P.L. 480 programs that were more active in the past—Cooley loans and private trade agreements (PTA's).

Under the Cooley loan program, the local currencies the United States had received in payment for P.L. 480 commodities were loaned to U.S. or foreign businesses operating in the recipient countries. The purpose was to expand U.S. markets, though not necessarily only agricultural markets.

Under the private trade agreement program, the U.S. Government provided credit to a private trader for purchase of U.S. agricultural commodities. The loan was payable in hard currencies. One of the first agreements involved granting production loans to farmer cooperatives in Iran. In Korea, agreements with companies such as Purina Korea, Inc., and Korea Cargill were used to finance new plants for livestock feed mixing and livestock and poultry production and processing.

Both Cooley loans and PTA's were curtailed or became inactive when the U.S. Government stopped accepting lo-

cal currencies in payment for Title I commodities.

The Title I/LC proposal is not expected to immediately affect U.S. farm prices and incomes, but it could affect the developmental impact of P.L. 480. Currently, the recipient government is the beneficiary of the local currency generated by the sale of Title I commodities. The Title I/LC proposal would help shift the development impetus to the private sectors of recipient nations.

The distribution of loans would be governed by market forces. Since the local currency debt would be repayable only in currencies convertible to dollars considerable risk would be incurred by the financial intermediary. The intermediary making the loan would be unlikely to lend funds to high-risk applicants, such as peasant farmers, but would be more likely to invest in enterprises already firmly established. [Mark Smith (202) 786-1687]



The Year After the Drought: How Much Recovery for Ethiopia and Sudan?

The rains have returned to Ethiopia and Sudan. The worst may be over for many survivors of this year's famine. But, food shortages will not disappear. The *World Food Needs and Availabilities (WFNA)*¹ estimates that in 1985/86 Ethiopia will require 1.1 million and Sudan 0.9 million tons of food grain imports simply to maintain consumption at the nutritionally inadequate levels of the last 4 years. If foreign exchange expenditure patterns do not change, Ethiopia will need 1.0 million and Sudan 0.6 million tons of food aid to keep consumption at 4-year levels. To meet minimum nutritional requirements set by the United Nations, food aid required would be higher—approximately 1.3 million tons for Ethiopia and 0.9 million for Sudan.

Slow Growth in Ethiopia's Food Production

Assessing food import needs for the *World Food Needs and Availabilities* study begins with analysis of a country's food production. Although harvests are highly variable, total food grain production has improved since the early 1970's in Ethiopia and Sudan. Over 90 percent of Ethiopia's crops are produced by peasant farmers or smallholders, who comprise 75 percent of the nation's 35.2 million people. Typically these are subsistence farmers, working less than 2 hectares of land in Ethiopia's highlands. Sixty percent of all crops are food grains, with teff (a traditional cereal), wheat, barley, sorghum, and corn all important. Other major crops are pulses, oilseeds, and coffee.

¹USDA Economic Research Service, *World Food Needs and Availabilities* (Washington, D.C.: ERS), 1985.

Ethiopia has Africa's largest livestock population. Smallholders keep animals mainly for draft and transportation uses, but 10 percent of Ethiopians are nomadic pastoralists who rely on livestock for the bulk of their food and income. The livestock sector has been severely hurt by the recent drought.

During the mid-1970's, agriculture in Ethiopia stagnated. Drought in the northern growing regions contributed to a food crisis between 1972 and 1974. Through 1974, the system of land ownership and land use relations was complex and inequitable. Tenancy was common among peasant farmers who worked smallholdings, often with heavy obligations to land owners. Food shortages and land tenure problems contributed to the fall of Emperor Haile Selassie in 1974.

In 1975, all agricultural land was nationalized and the existing large commercial farms became state farms. Political disruptions continued until 1977, when Mengistu Haile Miriam began to consolidate his power. As a result of these disruptions food production declined between 1975 and 1977.

Increased political stability and Government campaigns to raise agricultural production contributed to higher food grain output in 1978 and 1979. But agricultural programs were hurt after 1979 by rising fertilizer prices and declining Government revenues, as coffee export prices fell. Drought in some areas, combined with financial constraints, caused food grain production to fall in 1980 and 1981. Weather in the major crop-growing areas of the south improved in 1982 and 1983, though, temporarily leading to higher crop production.

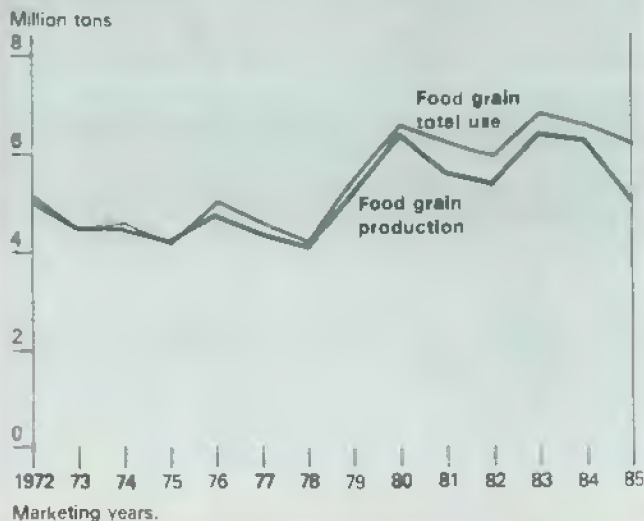
Drought Was Not Only Cause of Famine

The drought which had affected parts of the north in 1983 became more widespread in 1984 and food grain production fell to 16 percent below 1981-83 levels. The extent to which drought caused the current food shortages is not fully understood because weather information is limited and crop statistics are imprecise. While the available data do not indicate abnormally low rainfall, the data are spotty and little is known about the distribution of rain at critical times during the growing season. In the rugged topography of Ethiopia, rainfall can vary over short distances. This inconclusive evidence suggests that while localized drought was likely a cause of low food production, other factors were involved.

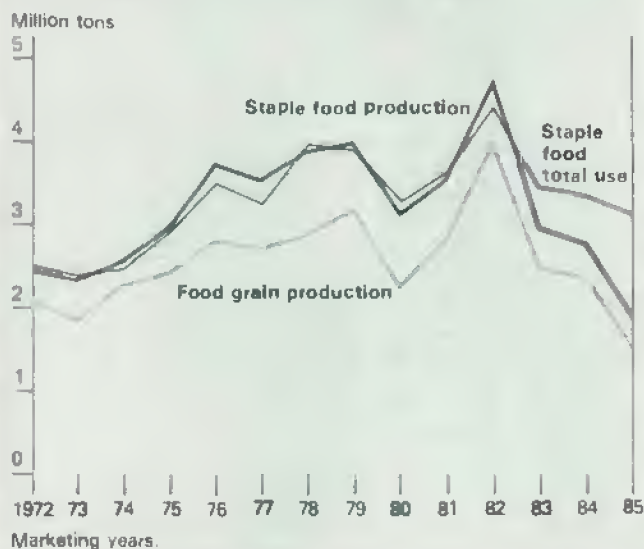
Among the areas suffering the most serious shortages are the northern provinces of Eritrea and Tigre, areas controlled primarily by groups at war with the Ethiopian Government. Armed conflict has probably contributed to poor agricultural performance, and it certainly contributes to food shortages and starvation in these regions. Food is in short supply in the other regions of Ethiopia as well, but since December, 100,000 tons of food aid per month have been entering the country, easing the general shortage in the Government-controlled areas.

The main harvests in Ethiopia are in November and December. To date, rainfall has been quite favorable. Although significant recovery is expected in 1985, a number of nonweather factors will probably keep production below normal. First, plantings were likely reduced because populations were displaced and the insurgencies in the north have

Ethiopia's Food Consumption Fell in 1983-85



Sudan's Food Gap Grew Rapidly in 1983-85



continued. Second, inputs—seed, draft animals, and farm implements—are in short supply. In addition, some of the 1985 crop may be lost to pests such as army worms because of inadequate pesticide distribution. Some of these factors have already reduced output from the secondary or "belg" season harvest—June to July—which normally accounts for 5 to 10 percent of food production.

Based on these considerations, 1985/86 food grain production in Ethiopia is estimated at 5.5 million tons, 11 percent above 1984/85 production but 5 percent below the 1981-1984 average.

Strong Improvement Likely on Sudan's Irrigated & Mechanized Farms

The structure of Sudan's production is much different from Ethiopia's. In Sudan, irrigation and mechanization are more important. Irrigated agriculture is dominated by

large Government-owned schemes along the Nile Rivers. These schemes provide small farmers with land, water, seed, chemicals, and technical services. The principal crops grown are cotton, wheat, sorghum, and peanuts.

One-fifth of Sudanese cropland, approximately 4 million acres, is managed by these schemes, the largest of which are the Gezira (2 million acres), New Halfa, Blue Nile, White Nile, and Rahad. The Gezira scheme alone normally produces two-thirds of Sudan's wheat.

Mechanized farming methods are used on 5.5 million acres of rainfed cropland, much of which is in eastern Sudan. Sorghum is the primary crop, but sesame is also important. Traditional farming practices are used on an estimated 9 million acres of rainfed cropland. Much of this is located in the western areas most severely affected by the current drought. Sorghum, millet, peanuts, sesame, and minor crops are grown for subsistence and for sale. Farmers in the traditional sector also produce gum arabic and a majority of Sudan's livestock.

Cotton, sorghum, peanuts, and sesame are grown for export. Sorghum, millet, wheat, and peanuts are the principal staple foods. Since the mid-1970's, food production levels have fluctuated as farmers have switched among crops because of changing Government policies and variability in weather.

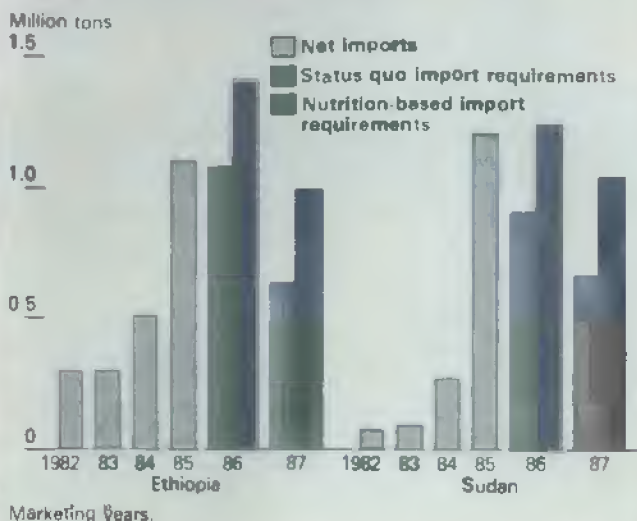
Food grain and peanut production grew slowly during the 1970's. Peanut production reached a record in 1977/78 and food grains peaked the following season. In 1979/80, poor rainfall reduced staple food production by 22 percent. But, strong production was recorded in the 2 following years as producer prices rose and weather improved. Sorghum production was a record 3.3 million tons in 1981/82.

The latest drought began to affect rainfed production in western Sudan during the 1982/83 season. Also in that year, sorghum producers in eastern Sudan were hurt by increased competition from other countries that sell to Saudi Arabia.

By 1984/85, the drought became so widespread that the irrigated sector was affected. Food grain and peanut production fell 45 percent below the 1981/82-1983/84 average. Wheat production dropped to 52,000 tons from 162,000 the previous year because the Government determined that water levels were too low to permit irrigation of wheat acreage in the Gezira scheme. Sorghum production also fell sharply, to 1.2 million tons.

Sudan's main harvests occur in October and November. Rainfall has been good since June. River flows have been adequate for strong recovery in the irrigated sector, while input shortages should not limit production in the irrigated and mechanized sectors. Wheat is not planted until November, and the Government expects to irrigate more than 200,000 hectares, surpassing 1979/80 and 1980/81. As a result of these signals, food grain production for 1985/86 is forecast at 2.6 million tons and peanut production at 410,000.

Ethiopia & Sudan Will Continue To Be Heavily Dependent on Food Imports



Food Aid Boosts Imports

The second step in assessing food needs, after estimating production, is analyzing food trade flows. Between 1978 and 1983, Ethiopia's food grain imports averaged 300,000 tons, primarily wheat. This represented only 5 percent of the country's total food grain supplies. Principal trading partners were Canada, the European Community, and the United States. Food aid provided nearly 50 percent of food grain imports during this period.

Food aid in response to the recent emergency raised imports to 500,000 tons in 1984; pledges for 1985 have exceeded 1.2 million tons. The United States' 1985 food aid contribution includes 390,000 tons of wheat and 75,000 of coarse grains. Ethiopia's commercial imports for 1985 are an estimated 150,000 tons of wheat—100,000 from France and 50,000 from Australia.

Sudan's imports averaged over 400,000 tons between 1977/78 and 1982/83, primarily wheat. Unlike Ethiopia, however, Sudan exported approximately 150,000 tons of sorghum per year during this period. Food aid receipts averaged nearly 200,000 tons during this period, with three-fourths coming from the United States. Most of the U.S. food aid was provided under P.L. 480 Title I, primarily for urban consumption.

In 1983/84, imports into Sudan were 310,000 tons and the Government halted sorghum exports as food production declined. In 1984/85, grain imports have risen to an estimated 1.3 million tons. Food aid reached 300,000 tons in 1983/84. In 1984/85, 1.2 million tons were pledged, with nearly 1 million provided by the United States. Sudan's commercial food grain imports in 1985 are estimated at under 100,000 tons.

Unfortunately, food aid distribution has lagged behind pledges in Ethiopia and Sudan. As of September, 83 percent of Ethiopia's and 94 percent of Sudan's 1985 shipments had reached their ports. As much food aid has arrived during some months in 1985 as has previously arrived in some whole years.

Food Aid Distribution to Interior Lags Far Behind Pledges



Source: World Food Program and ERS estimates.

Despite increases in cargo handling capabilities, some ships are still offshore waiting to unload. Trucks to move food are scarce and subject to frequent breakdowns. Additional trucks are continually being added to the relief effort and progress is being made in internal food distribution. But, road systems are overworked and most areas of Ethiopia and Sudan are far from the few paved highways. Seasonal rains, too, pose problems for food distribution. Rains make some roads impassable. Sudan's rail line to the west has been obstructed by washouts, breakdowns, and management difficulties. To date, only 64 percent of food aid pledged this year for Sudan has been distributed, and only 61 percent for Ethiopia.

Import Requirements Still High in 1986

In the third stage of the food needs assessment, two estimates of food requirements are derived. The status quo estimate is based on the assumption that per capita consumption will be held at the average level of the 4 preceding years, even if this is nutritionally inadequate. The nutrition-based estimate, in contrast, is calculated from minimum nutritional requirements set by the Food and Agriculture Organization (FAO)/World Health Organization (WHO).

Status quo food estimates are based on production and net imports, with adjustments for stock changes and feed uses. Between 1982 and 1985, food grain consumption in Ethiopia averaged 6.3 million tons, or 188.3 kilograms per person. To match this level of consumption, supplies of 6.6 million tons will be required in 1986.

Food grains provided two-thirds of calories consumed in Ethiopia between 1979 and 1981, but calorie consumption was approximately 10 percent below the FAO/WHO minimum. If the share of food grains in the diet were maintained and consumption increased to the FAO/WHO minimum of 2,330 calories per person per day, then Ethiopia's 1986 food grain supply requirements would be 7.0 million tons.

In Sudan, with a substantial decline in consumption in 1984/85, the 4-year average consumption of food grains was 3.1 million tons or 153.6 kilograms per person. Peanut con-

sumption during the base period averaged 498,000 tons or 22.5 kilograms per capita. To maintain this level of consumption in 1985/86, total supplies of 3.9 million tons of food grains and peanuts will be required.

Average calorie consumption in Sudan in 1979-81 was approximately 5 percent below the nutritional minimum. Food grains provided 50.8 percent of calories consumed, while peanuts provided an additional 12.1 percent. To increase Sudan's average daily consumption to 2350 calories per person while holding constant the shares of food grains and peanuts in the diet, 4.2 million tons of food grains and peanuts would be required in 1985/86 (calorie requirements may differ between countries because of different age and activity levels of the population).

The 1.1 to 1.4 million tons of imports required by Ethiopia and the 0.9 to 1.2 million required by Sudan in 1985/86 could be met by either commercial imports or food aid. The *World Food Needs and Availabilities* report makes no judgments on whether or how these food gaps should be filled. However, it does provide a benchmark estimate of foreign exchange available for food imports. By holding constant the proportion of available foreign exchange used for food imports in a base period, the estimates indicate a country's commercial import capacity for foods. Thus, an assessment of a country's overall balance of payments is part of the determination of food aid needs.

Ethiopia's Coffee Exports Down, Debt Service Increasing

Ethiopia's trade deficit grew steadily from 1979/80 to 1983/84. Much of this deficit was financed by foreign assistance, although external indebtedness increased and foreign exchange reserves declined. This pattern continued in 1984/85 as coffee exports—the most important foreign exchange earner—declined by 10 percent and food aid and imports financed by foreign assistance increased. Ethiopia maintained a relatively low 12-percent debt-service ratio prior to 1982/83, but this has increased to 20 percent over the past 2 years.

Ethiopia's commercial import capacity in 1985/86 is estimated at only 79,000 tons of food grains, because of the country's poor foreign exchange position and the low share (9 percent) of its foreign exchange that is normally allocated to food imports.

IMF Suspends Sudan's Credit

Sudan's foreign exchange position is bleak. Sudan's 1984 cotton harvest, at 1 million bales, was up 10 percent over 1983. However, quality and logistical problems severely hampered the cotton's export, while growing world supplies lowered prices. Sudan would normally export sorghum as well, but did not in 1984/85 because of the production shortfalls. Drought also reduced gum arabic and sesame exports.

Sudan's outstanding debt has approached \$9 billion and debt-service obligations in 1985 are over \$500 million, nearly four-fifths of export earnings. With rising import requirements and weak export performance in 1984/85, the country's trade deficit continues to frustrate efforts to meet its debt-service obligations.

Production Estimates and Consumption and Import Requirements for Ethiopia and Sudan, 1985/86

Country	Total use require.			Import require.	
	Status quo 1/	Nutrit. based 2/	Prod.	Status quo 1/	Nutrit. based 2/
---Thousand tons---					
Ethiopia	6629	8971	5545	1084	1426
Sudan	3907	4223	3005	902	1228
Food grains	3409	3665	2595	814	1070
Peanuts	498	568	410	88	158

1/ To maintain 1981/82-1984/85 average per capita consumption. 2/ To raise average per capita consumption to nutritional minimums.

Source: *World Food Needs and Availabilities*, 1985.

Much of Sudan's heavy debt burden was incurred during the 1970's. A series of debt reschedulings began in 1979, accompanied by efforts to improve economic performance. The latter included increased incentives for cotton production, World Bank investment in irrigated agriculture, and adjustments in exchange rates.

But, economic difficulties continued. By mid-1984, Sudan's financial problems became critical. In July 1984, the International Monetary Fund suspended its standby agreement for balance-of-payments support, as Sudan fell into arrears in payments and failed to implement foreign exchange reforms. Consequently, the U.S. Commodity Import Program was halted from September 1984 to March 1985 and other donors suspended foreign assistance.

The United States, Saudi Arabia, and the World Bank later resumed their assistance to Sudan in response to new foreign exchange reforms and price adjustments on petroleum and bread. In March 1985, bread prices were raised 33 percent, but widespread demonstrations forced a rollback to 8 percent in April. The demonstrations, fueled by chronic economic problems and deep political divisions, culminated in a bloodless coup on April 6, ending 16 years of rule by President Jaffar Nimieri. The Transitional Military Council which assumed power in the coup has been unable to reach a repayment and reform agreement with the IMF.

Sudan normally allocates 23 percent of its available foreign exchange to food imports. Because of its poor balance-of-payments position and debt obligations, its commercial import capacity for food grains and peanuts is estimated at 320,000 tons for 1985/86.

Countries Remain Dependent On Foreign Food Aid

In the short run, Ethiopia and Sudan will remain dependent on foreign assistance to satisfy their food requirements. Food production is expected to fall below historical trends because of the continuing effects of drought and civil war. Commercial import capacity is limited by a number of financial factors. Food production under traditional farming practices will be slowest to recover.

In Sudan, substantial recovery is expected on the irrigated and mechanized farms. Localized food shortages may continue in western, northern, and southern Sudan and in northern Ethiopia. However, with international help and government efforts to improve agricultural production, these countries may recover from the current food emergency and begin to reduce their structural food deficits over the next few seasons. [Stephen Haykin (202) 786-1680]



House 1985 Farm Bill Trade Provisions

A 1985 omnibus farm bill was passed by the House of Representatives in early October. The bill (H.R. 2100) is designed to amend and add to the permanent legislation of 1938 and 1949 and authorize programs through crop year 1990. The Senate is also currently putting together a bill. When the two versions are completed, the differences between them will be reconciled to produce a final bill to be sent to the President for his signature.

The final features of the bill could be similar to or quite different from those contained in H.R. 2100. The trade provisions of the House bill are as follows.

EXPORTS

- Directs the agriculture secretary to carry out a program under which Government-owned commodities are offered to U.S. exporters, processors

and foreign purchasers, at no cost or reduced cost, to encourage the development and expansion of export markets. Requires the secretary to use commodity export assistance for countering subsidies paid by other nations on products that are traditional commercial U.S. exports, and gives the secretary discretion to use such assistance to expand farm exports in other markets.

- Authorizes the agriculture secretary at his discretion, to use \$325 million in Commodity Credit Corporation funds in fiscal 1986 for direct export credits in connection with programs that are blended with private, commercial credit sales. Also requires that not less than \$5 billion in guarantees be made available in fiscal 1986 for short-term credits, and prohibits increases in the current credit origination fee of 0.33 percent on credit guarantees.
- Broadens the existing program of loans for intermediate term (3 to 10 years) export credits. Requires the secretary to make at least \$500 million a year available in the intermediate credit program, but limits direct loans to 25 percent of that total. In addition, the secretary would be permitted to accept up to 10 percent of repayments in foreign currencies, which could be used to develop U.S. export markets.
- Extends through 1990 authority for creation of an agricultural export credit revolving fund, which would be fed by repayments of direct CCC export credit loans. Revolving fund loans could go up to 10 years instead of three years, as currently

authorized, and loans could be used to counter foreign credit competition in addition to the currently authorized purpose of promoting market development.

FOOD FOR PEACE

- Extends the export sales and grant program for five years through fiscal 1990, and raises the authorization ceiling for grant programs from \$1 billion to \$1.2 billion a year.
- Sets new two-year minimums for donations of surplus grains, dairy products, and oilseeds under Section 416, including not less than 150,000 tons a year of dairy products for fiscal 1986-87, and one million tons in fiscal 1986 and 600,000 tons in fiscal 1987 of grains and oilseeds.
- Extends authority for five years for replenishing when necessary the Government's international emergency wheat reserve.

The cargo preference provision, which would have exempted export financing programs such as blended credit and commodity export assistance plans from requirements that half of these cargoes must be shipped on U.S.-flag vessels was rejected by full House. (Herb Moses (202) 786-3333)



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